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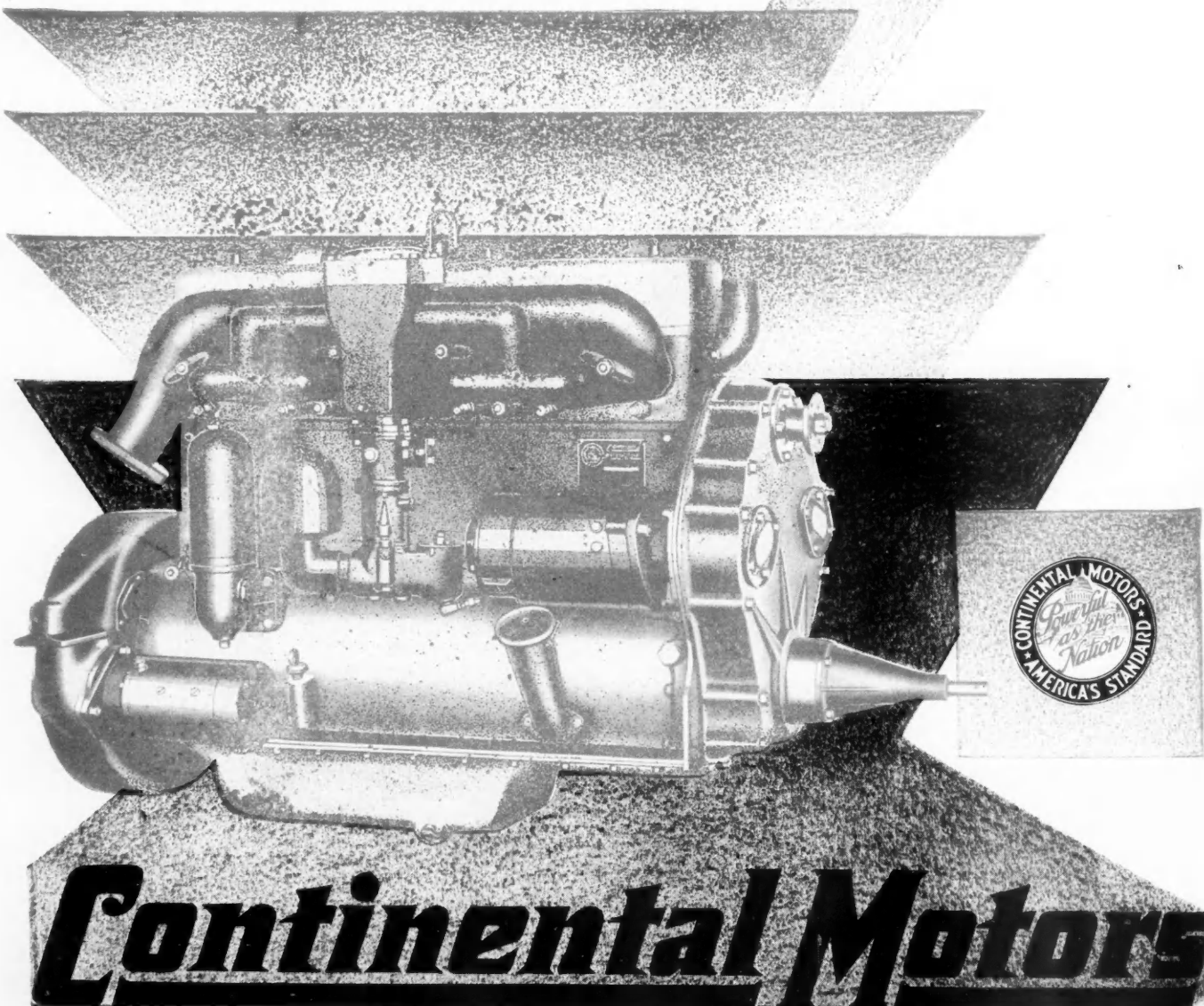
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# AUTOMOTIVE INDUSTRIES

## AUTOMOBILE

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Established 1902

Vol. 61

No. 14

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## Important Announcement



### Large Die Sets

Automotive Industries, October 12th issue, will carry an announcement of the utmost interest to the entire automotive industry.

This will concern the complete line of large die sets . . . for the largest jobs in the automotive industry . . . designed by Danly, to meet every requirement and the specific needs of the automotive industry for the largest work and where successive dies are used side by side.

If you have large work or jobs where several operations can be performed in the same press by successive dies, these large die sets offer you great possibilities. Read Automotive Industries' announcement, October 12. Meanwhile telephone or telegraph for the new book.

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**Excellent Investment**  
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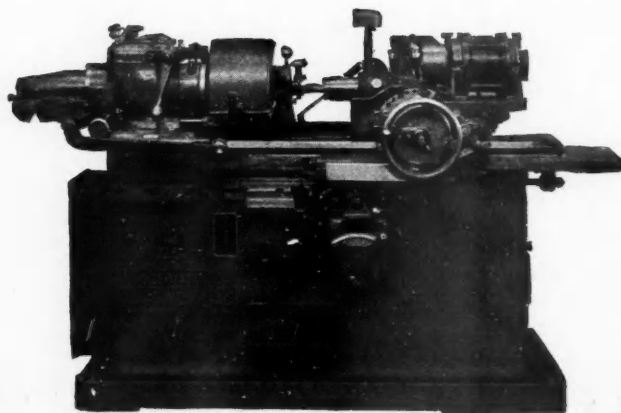
Above is from a letter in our files dated July 27, 1929.

Admitted as the last word among mass producers, the above remarks from the R. K. LeBlond Machine Tool Company are typical of what a score of other shops think of the Heald Automatics for small lot work.

Regardless of what your internal grinding work is, send us samples and let us give you data on what an automatic *will do for you*.

The Heald Machine Co., Worcester, Mass., U.S.A.

# HEALD



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# AUTOMOTIVE INDUSTRIES

VOLUME 61

Philadelphia, Saturday, October 5, 1929

NUMBER 14

## Factory-Dealer Relationships Hinge on Financial Aspects

*Manufacturers are giving careful study to the best means of mitigating the adverse financial effects of new car announcements in relation to dealers' inventories of old models.*

By NORMAN G. SHIDLE

NO factory today can expect dealers to bear the burden of an annual "clean-up" of old models and at the same time expect those dealers to maintain a friendly attitude toward the factory.

"Plenty of dealers have reached the stage where they are willing to say 'No' flatly to the factory which asks them to carry the financial burden of cleaning up overproduction of old models coincident with the announcement of new lines, even if that refusal involves the possibility of losing an otherwise profitable contract.

"The backbone of individual dealers on this question seems to have been stiffened considerably in the last year."

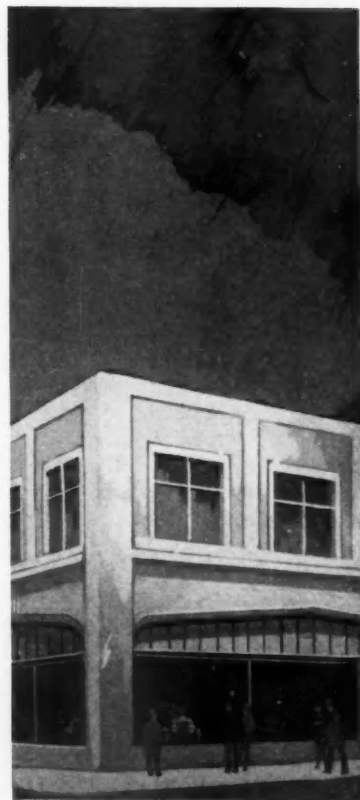
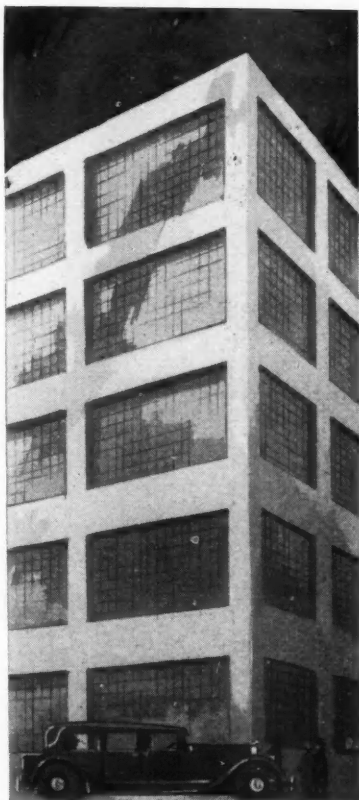
This was one of several interesting comments on factory-dealer relationships made to us a few days ago by an experienced automotive man, not connected with any factory or dealer organization, who had just completed a trip throughout the northeastern section of the country which lasted several weeks, and which took him into scores of automobile dealer establishments for intimate discussion of the retailer's ideas and problems.

Many of his comments fitted closely

into the background of current routine information and ideas which constantly flow to *Automotive Industries* and helped to crystallize our ideas concerning certain trends in the course of relations between factories and dealers which have been growing more and more apparent as time goes on.

Other topics in this category which comment from this investigator brought to the foreground included:

1. The open price-cut vs. the trading allowance in clean-ups preceding new model announcements.
2. The possibilities for profit-making on the part of the individual dealer regardless of general conditions concerning production totals, national used car stocks and other general situations.
3. Is paternalism on the part of a factory more to be feared in automotive merchandising than individual dealer inefficiency?
4. Do "companion" lines offer particularly difficult merchandising problems from the standpoint of the dealer? Of the factory?



That the annual clean-up of old models, in which thousands of dealers have been called upon to participate, is breeding more dealer-factory dissension every year has been apparent to close observers for some while back. The active ill-will found by this particular investigator in certain dealer ranks this year merely indicates a little increased virulence in the attitude of some retailers.

Probably the serious attempts of some car makers to find means of mitigating the adverse financial effects of such clean-ups on dealers has tended to emphasize more strongly the burdens of others, but the fact remains that there is hardly a factory executive in the business today who is not giving careful study to the best means of handling new car announcements in relation to old model inventories.

The open price-cut as a substitute for the trading allowance device so frequently used in the past gives signs of getting more adherents every year. Fundamentally sound from an economic standpoint, the open price-cut on old models preceding the announcement of a new line tends to clarify used car values and to put the industry on a clean-cut basis.

#### Divided Opinions Evident

It would be incorrect to assume, however, that this basic economic soundness makes the open price-cut method universally popular among retailers or factory executives. On the trip referred to, the particular automotive man, whose comments generated the present discussion, found divided opinions among dealers as to its immediate desirability. Some of those who have had experience with it were definitely in favor of it. Nearly all were willing to admit the arguments as regards its basic economic soundness. But there were many who definitely didn't like it, because they claim the average owner wants and expects not only the price cut, but also the overallowance on his used car. When he doesn't get the big allowance on his used car, this group claims, he tends to buy where he can get it, regardless of the price decrease. These particular retailers, it seems, would rather have a trading allowance to play with.

Those favoring the open price-cut, however, point to the fact that only through persistent handling of affairs on this basis can the ideas of the public as regards actual used car values ever be made reasonable, and urge the additional fact that every customer has a better chance of equally fair treatment under the open price-cut policy.

We were particularly interested in the opinion of our investigator on the question of profit-making possibilities open to the individual dealer under conditions at present existing in the automotive marketing field. This investigator, it is fair to say, would seem to us to be a bit more likely to see through dealer than through factory eyes on this matter. Here's approximately what he had to say:

"I came back from this trip convinced that the practical answers to the difficulties of the

average dealer do not lie in the realm of limitation of total output for the industry, of used car plans or of any generalized—and improbable—ideas for joint action by all members of the industry.

"I am convinced that there is today, under conditions as they exist, a thoroughly good opportunity for most individual automobile dealers to operate their businesses at a substantial profit.

"I am equally convinced, however, that the average factory will have to play a much bigger part in actively and practically showing the individual dealer how to operate his business profitably than it has done in the past.

"It looks to me as though the automobile manufacturers might as well recognize that they are in an era which necessitates what might be termed 'chain store merchandising through independently owned outlets.'

"But what about the chance of the factory becoming too paternalistic?" we queried. "If the factory takes upon itself too much of the responsibility for providing accounting systems, seeing to it that the dealer installs and uses them, if it works actively with the dealer in connection with his service and sales problems on a day-to-day basis, isn't there a good chance that the retailer's initiative will be cut down to a minimum, or that he will resent such intrusion into his business?"

"The answer to that," our investigator friend came back, "is that by far the most contented and friendly to the factory dealers that I called on during this recent trip were those selling a car for a factory which supervises its dealers' activities in every single phase more closely than any other in the business.

"True, this particular factory didn't rush in on its dealers over night and say, 'You must do this and you must do that.' It didn't force its help on its retailers with a 'you'll-take-it-and-like-it' attitude. It worked hard through intelligent sales effort within its dealer ranks to sell individual dealers on taking and using the intelligent cooperation which was being extended. Generally speaking, it didn't force the use of recommended

methods on any dealer; when a dealer couldn't be made to see the light, eventually a change of dealers was made—not as a punishment for not obeying orders, but because this factory considered such a dealer incapable of producing a reasonable volume in his territory. In the meantime, however, it did not load him with cars which he couldn't sell; it contented itself with trying to make him see the desirability of using methods which would enable him to sell more."

Perhaps our friend had become overly enthusiastic about the methods of this particular factory; perhaps he overemphasized somewhat the perfection of its methods from a psychological standpoint. Nevertheless, he does raise a point worth very serious argument in any factory organization today, since no sales manager wants to permit fear of being paternalistic to act even as an unconscious alibi for failure to step into dealer-help activities in a forceful and practical manner. (Continued on page 482)



# Nash Enters Eight-Cylinder Field With 100-h.p. Series

*Models for 1930 show a price level practically the same as last year's with the range starting at \$915 for the single six and listing upward to \$2,260 for the largest.*

By M. WARREN BAKER

**A**NOTHER of the big independent automobile manufacturers entered the eight-cylinder field this week when the Nash Motors Company announced a series of cars powered by a 100-hp. straight-eight engine. The new line embodies the overhead-valve construction that has characterized Nash products for years, and the twin-ignition feature that was introduced last year in the two larger "400" lines.

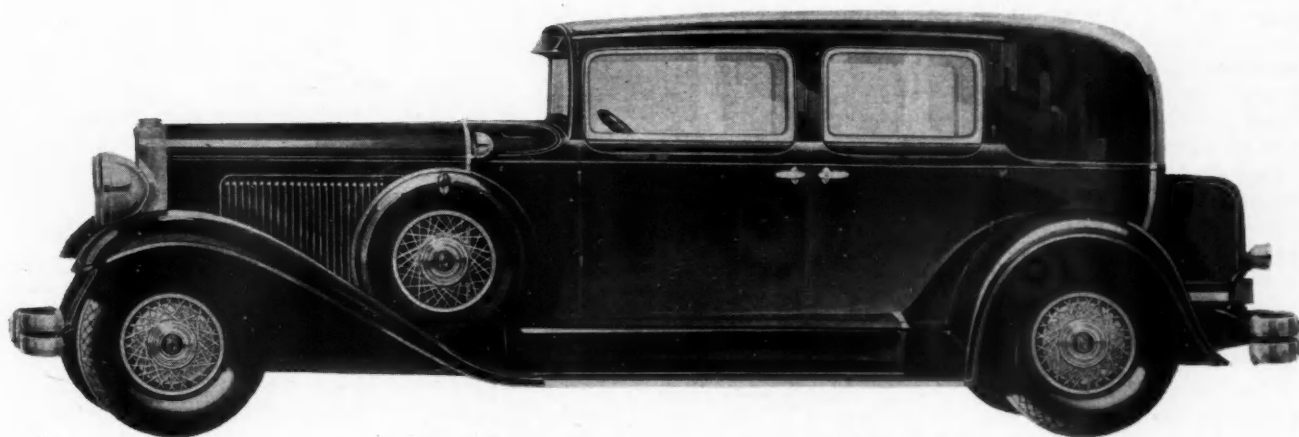
The 1930 "400" series comprises three chassis models, the "Twin-Ignition Eight," the "Twin-Ignition Six" and the "Single Six." The complete series includes 25 body models and the two larger models are built on two wheelbases. Wheelbases on all three models are slightly longer than on last year's productions.

Prices of the eight range from \$1,625 to \$2,260; of the larger six from \$1,295 to \$1,695, and of the Single

Six from \$915 to \$1,075. Notwithstanding the fact that the new eight takes the place of the former Advanced Six, the three price ranges are practically the same as last year.

Appearances have been changed to a certain degree, the hoods being slightly longer and flatter and top and body contours different. There are also various mechanical changes and refinements in all of the three models.

Self-energizing internal mechanical four-wheel brakes are fitted to all of the new jobs. These are cable-operated, and the adoption of this method of brake control has done away with a lot of rods, levers and joints and materially cleaned up the chassis. On the larger models the chassis springs are steel-jacketed. The jackets are packed with special grease at the factory and are said to require no further attention with



*The Nash Ambassador, new 5-pass. twin ignition eight*

## Prices for 1930 Nash 400 Series

### *Twin-Ignition Eight*

5-Pass. 4-Door Sedan.....	\$1,695
4-Pass. Cabriolet .....	1,775
2-Pass. Coupe .....	1,775
4-Pass. Coupe .....	1,845
5-Pass. 2-Door Sedan .....	1,625
7-Pass. 4-Door Sedan .....	2,085
7-Pass. Limousine .....	2,260
5-Pass. Ambassador .....	1,995
Burbank Top Ambassador..	1,995
Chassis—124-in. ....	1,175
Chassis—133-in. ....	1,225

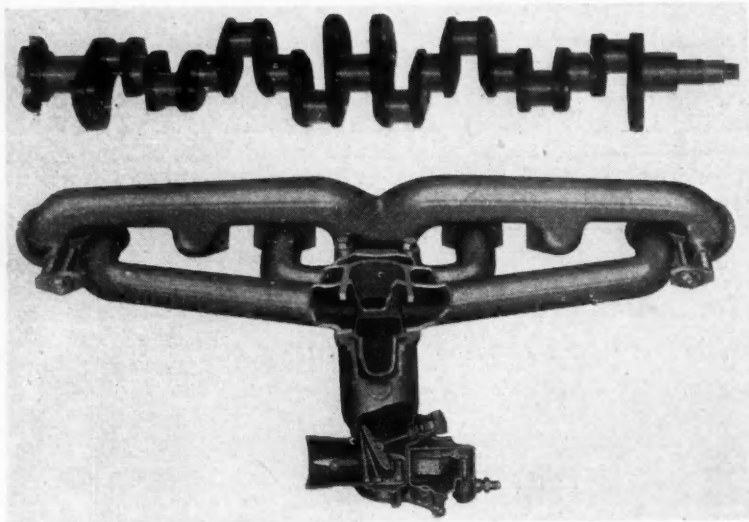
### *Single Six*

5-Pass. 4-Door Sedan .....	\$ 985
4-Pass. Cabriolet .....	985
2-Pass. Coupe .....	915
4-Pass. Coupe (Rumble Seat)	955
5-Pass. 2-Door Sedan .....	915
5-Pass. 4-Door De Luxe Sedan	1,075
5-Pass. Touring Car .....	975
Chassis .....	710

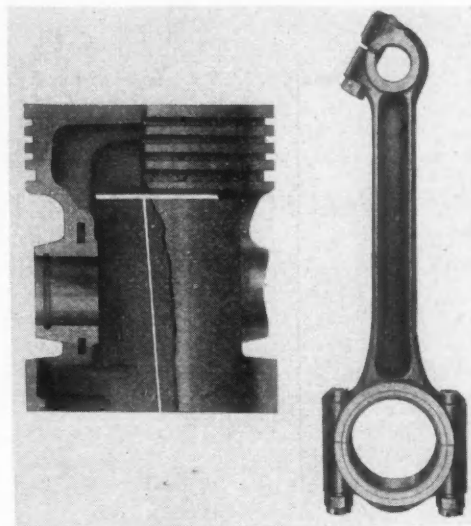
### *Twin-Ignition Six*

5-Pass. 4-Door Sedan .....	\$1,385
4-Pass. Cabriolet .....	1,355
2-Pass. Coupe .....	1,295
4-Pass. Coupe (Rumble Seat)	1,345
5-Pass. 2-Door Sedan .....	1,295
7-Pass. 4-Door Sedan .....	1,695
7-Pass. Touring Car .....	1,425
5-Pass. Tonneau Cowl Tour.	1,545
4-Pass. Victoria .....	1,385
Chassis .....	970
Long Chassis .....	1,020





Components of the twin-ignition eight engine. On the left is shown the nine-bearing crankshaft and the combined inlet and exhaust manifold; below: Aluminum alloy piston and connecting rod



respect to their lubrication for the entire life of the car.

Thermostatically controlled radiator shutters now are standard equipment on all lines. The Bijur chassis lubrication system is used on the two larger lines, while the smaller job has a constant and automatic chassis lubrication system which requires no effort by the driver to operate.

Vibration dampers have been fitted to all three engines. Fuel is supplied to the carburetors of all chassis by pump instead of vacuum tank. The starting button, which was formerly on the floor, is now placed on the dash and windshield and windows now are equipped with non-shatterable glass. All sedan and coupe models in the two larger lines have adjustable front seats.

The engine which powers the new eight has a bore and stroke of  $3\frac{1}{4} \times 4\frac{1}{2}$  in., giving a piston displacement of 298.6 cu. in., and while its S.A.E. rating is only 33.8, it develops 100 hp. at 2900 r.p.m. The compression ratio is approximately  $5\frac{1}{2}$  to 1. General design characteristics are much the same as those of the former six-cylinder engines, since it incorporates the overhead valve and the twin-ignition system of the 1929 "400" series. Spark plugs are of the metric type.

The crankshaft is mounted in nine main bearings and has hollow pins and integral balance weights. Invar-strutted pistons are used in all of the engines, and connecting rods are of aluminum alloy and capped with case-hardened steel.

A dual manifold is supplied on the eight, and the refined carburetor used in this line has an extra high-speed jet which cuts in at 50 m.p.h.

The camshaft is mounted in six graduated bearings, and driven by a silent chain. Full pressure lubrication to all main and connecting rod bearings, pistons pins,

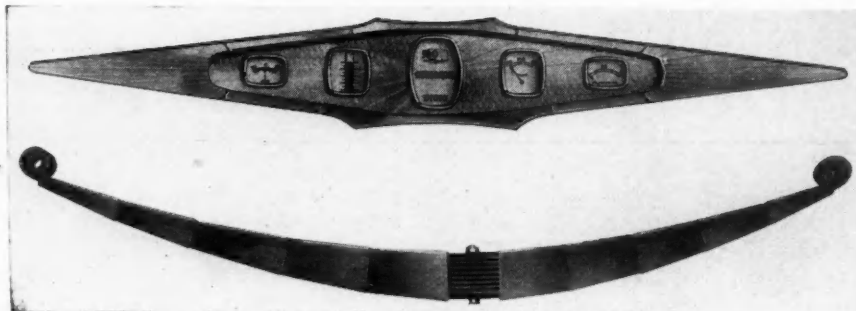
camshaft bearings and valve rockers is supplied by a gear-driven pump.

An additional new feature of the chassis is a road-shock insulator on the left front spring, which makes the steering immune to the influence of road shock and prevents shimmy.

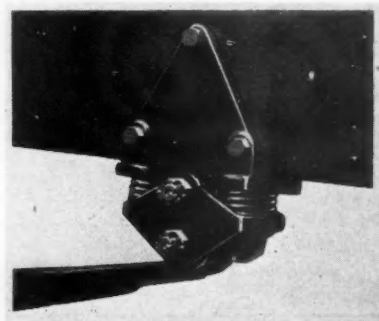
On the new eight, as on the other models, the frame has been slightly widened at the rear. It is still of the double-drop type, with extra deep channels and braced with six tubular cross-members. The wheelbases of the eight are 124 in. and 133 in. Tires are 31 x 6.50, full balloons.

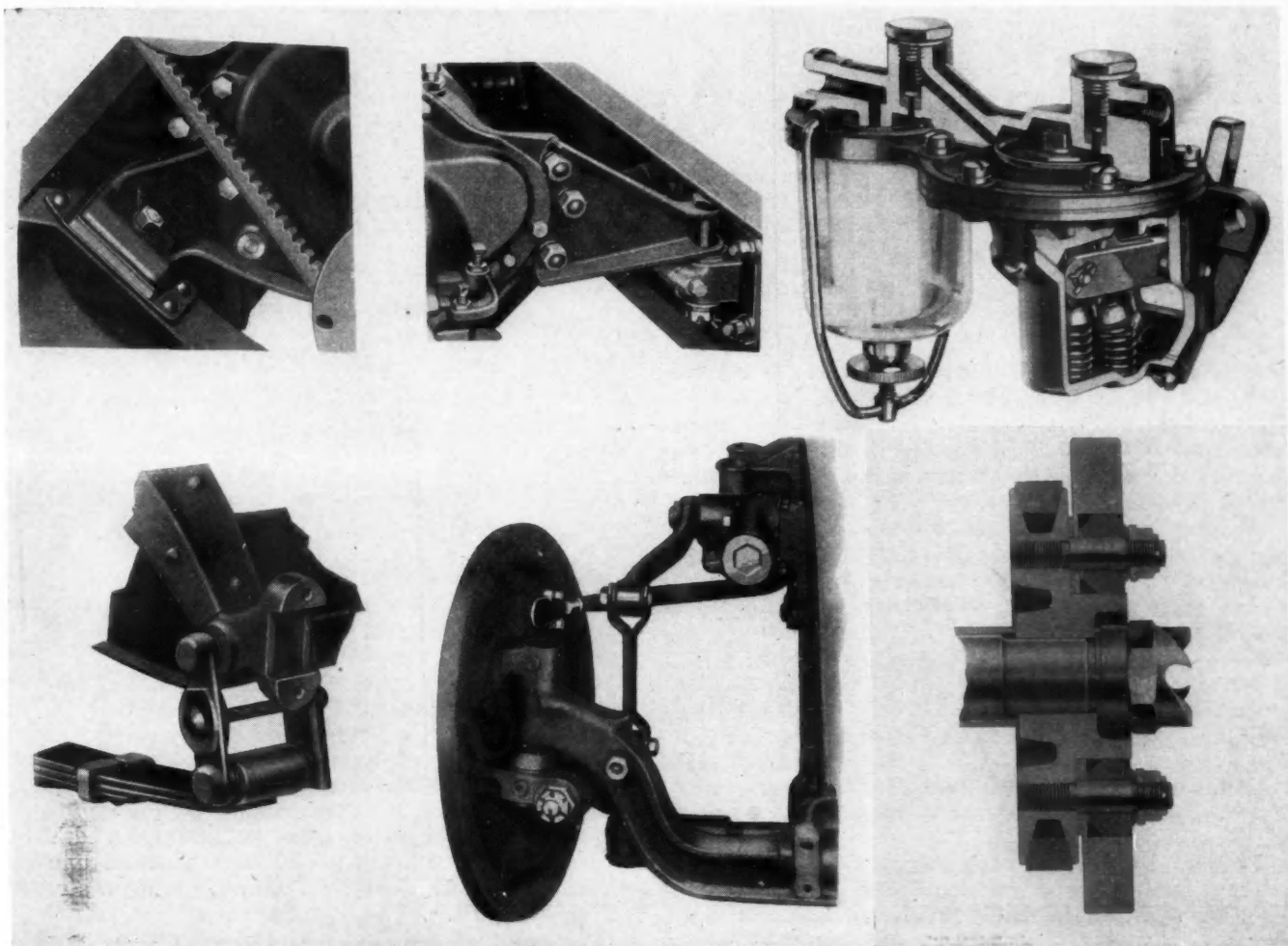
With a  $3\frac{3}{8}$  in. bore and a stroke of  $4\frac{1}{2}$  in., the new twin-ignition six engine is slightly larger than the previous Advanced Six, which had a bore of  $3\frac{1}{4}$  in. The S.A.E. rating of the new engine is 27.3 hp. The brake horsepower is said to have been increased slightly owing to the increase in bore and the use of the new invar-strutted pistons, coupled with a slightly higher compression ratio. As in the eight-cylinder engine, twin-ignition and overhead valve construction are among the features of design, as is the use of valve push-rods of the tubular type, for the sake of lightness and reduced inertia stresses. The wheelbases of this model are 118 in. and  $124\frac{1}{2}$  in.

In the Single Six engine, L-head construction is employed, as in the preceding Standard six model. The stroke has been increased from 4 in. to  $4\frac{3}{8}$  in., however, and the brake horsepower has been increased to over 60. Intake valves have been increased slightly in



Above: Instrument panel and spring with spring-steel cover of twin-ignition six. To the right is the rear mounting of front spring on twin-ignition eight





*Features of the Nash twin-ignition six: Upper left, engine mounting details; upper right, fuel pump; lower left, shackle at forward end of front spring; lower center, front brake control mechanism and front shock absorber mounting; lower right, torsional vibration damper making use of elastic blocks*

size, while, as in the two larger models, invar-strutted pistons and a torsional vibration damper are used.

Radiator shells of all three models are narrower, adding a new note to the front appearance of the cars. In place of the straight side and flat-arched roof, the new Seaman salon bodies have an arch starting at the waistline and continuing unbroken to the top. Another change is the use of a new all-metal side roof shell replacing the customary fabric.

Twin ventilators are provided in the cowl of the new bodies. Interiors have been refined to a large extent, an outstanding feature being the new instrument panel, designed in art moderne, and incorporating the salient features of the new Nash crest adopted last year. The two larger models have four-spoke steering wheels, while the smaller model this year is fitted with a three-spoke wheel. The wheelbase of the single six chassis is 114 $\frac{1}{4}$  in.

Lovejoy single-acting hydraulic shock absorbers are supplied with all cars, the rear installations being of the "inboard" type. That is to say, at the rear the shock

absorbers are bolted to the frame on the inside of the channel, which assists greatly in "cleaning up" the chassis.

Standard equipment of all three lines includes thermostatic radiator shutters, an oil filter, a gasoline pump and strainer, an air cleaner, a crankcase ventilator and self-adjusting spring shackles. All exterior bright work is chromium-plated in the new cars. All cars are fitted with a gasoline gage, an oil gage, an engine heat indicator, a speedometer and ammeter. Starter button, carburetor heat control button and choke button are mounted on the dash.

The two larger models in addition have rubber-covered pedals and twin automatic windshield wipers, while the de luxe touring car models have double cowl decks and windshields.

Additional equipment on the eight includes an electric clock. The gearshift lever and the parking brake lever (the latter located on the driver's left) are nickel plated. An accelerator of the treadle-type is fitted and the windshield, which is crank-operated, swings outward.



# Hupmobile Model C, 1930 Series, At Reductions in Prices

*The cars are listed at from \$1,595  
\$1,985 for the 1929 unit which it  
tically new, developing*

By ATHEL F.

THE second of its series of 1930 models is announced by Hupp Motor Car Corp., just about a month following the introduction of the lower-priced six Model S. The new car is the Model C, an eight, which succeeds the former Model M. It is offered in five body models, a seven-passenger phaeton, a five-passenger standard sedan, a town sedan with soft top, a rumble-seat coupe and a rumble-seat convertible cabriolet. Prices have been reduced by from \$85 to \$315.

Following are list prices compared with the former Model M:

Model	New Price	Old Price	Reduction
5-pass. sedan (4-door) . . . . .	\$1,595	\$1,815	\$220
Town sedan . . . . .	1,670	1,985	315
2-4 pass. coupe . . . . .	1,595	1,770	175
Conv't. cabriolet . . . . .	1,670	1,775	85
7-pass. touring . . . . .	1,650	1,785	135
Chassis price . . . . .	1,200	.....	.....

Striking body innovations impart distinctiveness to the new car. Numerous mechanical improvements have been made, the engine being practically new and developing nearly 100 hp. at 3400 r.p.m. instead of 85 hp. at 3000 r.p.m. Maximum torque is now developed at 2000 r.p.m., while at 1200 r.p.m., the former torque peak, there is no change. The result is a higher top speed and better acceleration at high road speeds, even though the cars are slightly heavier than formerly. Brakes are larger and more effective, and frames are stronger.

Starting at the front of the car, close inspection reveals the radiator outline to follow fairly closely last year's design, but to be higher and deeper. Radiator shutters are now of the built-in thermostatic type, with a false bottom over the lower radiator tank. The one-piece radiator and side splash pan is gracefully curved, and is fairly short—just sufficiently long to dress up

the front end. The front bumper clamping brackets are streamlined into the spring horn covers, cleaning up this point also.

Looking at the radiator from the side, it will be seen to curve back into a peak at the rear. This "peak" or pointed effect is carried through on the rear of the body. Thus on the sedans, sun visors come to a point at the front, hood hinges are extended across the cowl, where they widen out slightly into a triangular form, and the cowl itself is slightly pointed at the top, forming an obtuse angle at the lower edge of the windshield. Furthermore, the rears of all cars have an unusual streamline running down the center, giving a streamlined "keel" effect.

The same pointed design is carried out in the rims of headlamps, fender type parking lights and rear fenders. In combination with this general design, a hardware pattern consisting of superimposed "keystones" or rectangles of futuristic appearance has been adopted. This design is found not only in the interior on all hardware parts, but also on such parts as parking light mounting brackets, steering wheel and center, where the light switch forms part of the pattern, radiator emblem, hub caps, bumper assembly brackets, door handles and filler caps.

Viewed from the side, a Continental touch is imparted the new bodies by making the doors and body side panels practically flush with the running board splasher, the doors extending below the body sills, which latter serve as scuff-plate mountings. At the rear of all cars, the sheet metal which encloses the rear spring horns, bumper

*The convertible cabriolet on  
the Hupmobile Model C  
chassis*





## Is Offered in *Five Body Types* *Ranging from \$85 to \$220*

*to \$1,670 compared with \$1,755 to succeeds. The engine is practically 100 hp. at 3400 r.p.m.*

### DENHAM

mounting brackets, etc., has a terraced paneling which is quite novel.

On the cabriolet also, as well as on the coupe, a novel effect of rear deck finish has been obtained by extending the body molding over the front half of the rear deck in the shape of a semi-circular raised panel with pin striping outline, which, when viewed from the side, has the effect of further lengthening the horizontal line at the belt, giving the cars a longer appearance.

Adjustable seats and steering columns are among the inside innovations. The gear-shift lever is set well forward, permitting of easier access to the driver's seat from the right-hand side. The instrument board is finished in imitation walnut, and has three slanting ivory stripes on each side, the portion between the stripes being finished so as to give the impression of inlaid woodwork. Instrument panels themselves follow the futuristic hardware pattern in design, and have rectangular openings for the instrument dials, there being three such openings for the speedometer. Both direct and indirect lighting is provided. Crank operated tilting windshields, with a slight angularity in the closed position to cut out glare, are also found.

For ventilation, dual cowl top ventilators are provided. The starter button is well to the right of the accelerator pedal to prevent accidental depression. In the rear compartment, the increased seat width is especially notable.

This has been obtained by flaring the bodies out slightly below the belt molding. The same inlay effect as on the instrument board is also found on the garnish moldings. The standard sedan has an unusually large rear quarter window.

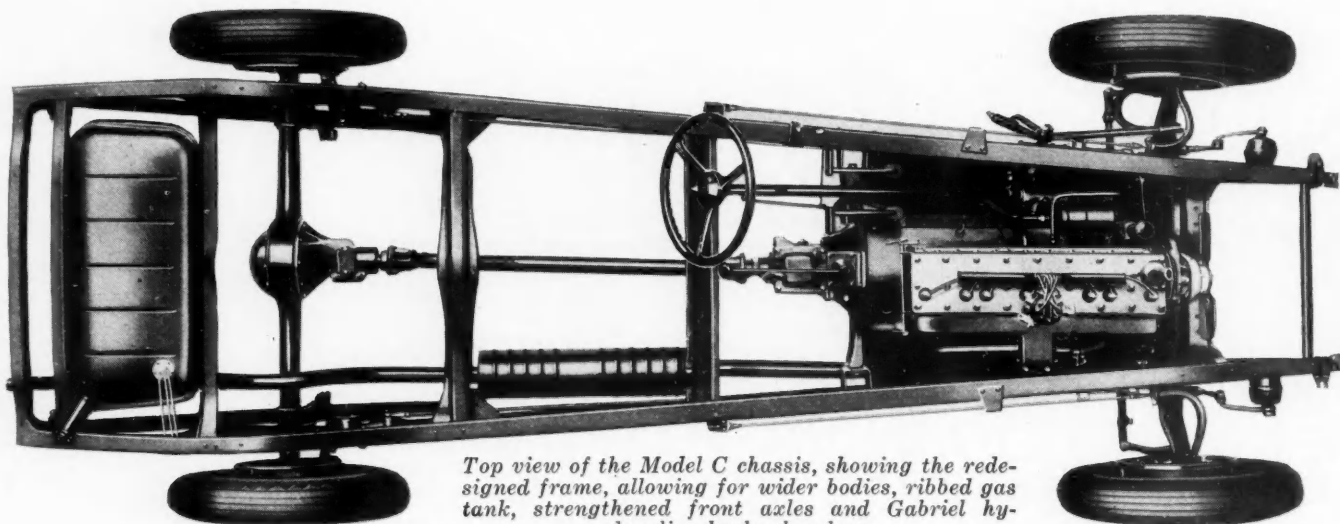
While the major specifications appear about the same as on the Model M, quite a few mechanical changes have been made. The crankcase upper half and cylinder block are now cast in one unit. Moreover, the block is reversed, with the valves at the left, for a more convenient arrangement of the accessories drive. Counterweights have been added to the crankshaft, and connecting rods have been lightened. The latter have rolled strip bronze bushings in the upper end, two bushings to the rod, with a space between the bushings to form the oil groove. At the lower end only the inner bearing surface is babbitted, while the outer bearing surface is on the steel directly. Each of these changes enables a decrease in rod weight without change in the structural strength.

Two Perfect Circle "tungtite" rings are now used for compression on the cast-iron pistons, together with an oil control ring, all above the pin. Squirt lubrication to the piston skirts is now provided through a metering hole in the connecting rod at the lower end. The rods are rifle-drilled.

Changes in the valve mechanism account for the increased power and torque of the engine. Valve diameters have been increased 1/16 in., the lift remaining the same. Although the actual valve timing has not been changed, the valves now open and close much more rapidly. To effectively control the valves under the more rapid accelerations, double concentric valve



*The Hupmobile Model C town sedan, with its soft top. Note that the keel effect is carried out on the trunk, which is standard equipment on this model*



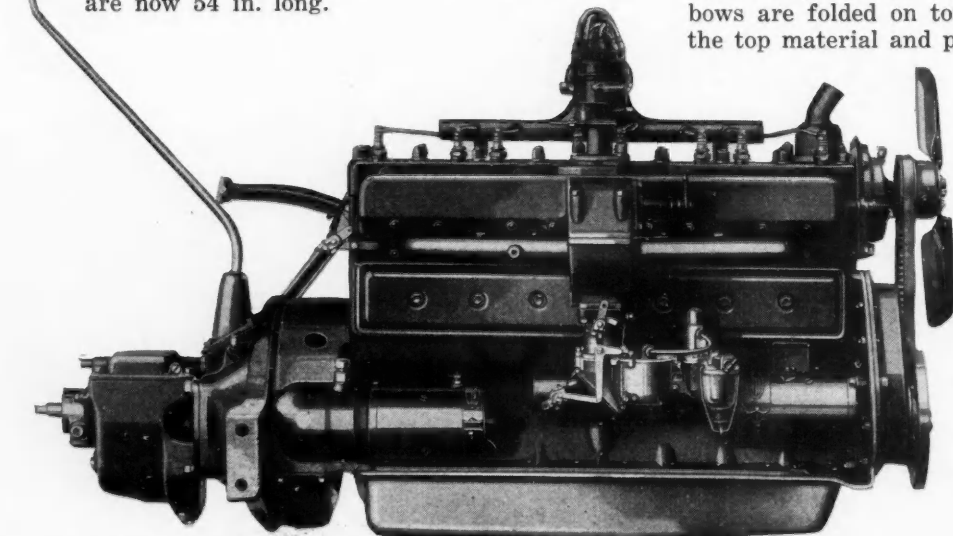
*Top view of the Model C chassis, showing the redesigned frame, allowing for wider bodies, ribbed gas tank, strengthened front axles and Gabriel hydraulic shock absorbers*

springs, coiled in opposite directions, have been adopted. Chrome-vanadium wire is used for these springs which, when the valves are fully closed, exert a combined pressure of 95 lb.

Although the shape of the combustion chamber has been modified slightly, the compression ratio is unchanged. Combustion chambers are partially profiled. Camshaft bearings are now of the steel-backed babbitt-lined bushing type. These bushings are rolled from strip steel, after babbitting, and are reamed after pressing in with a press fit of about .005 to .006 in. The water pump and fan are now integral. However, the pump is not set into the block in the usual manner, but raised to bring the fan into a more favorable position.

In the clutch, transmission and rear axle are found only minor production changes, with the exception of the moving of the gear-shift lever to the clutch housing for more front compartment room, and the adoption of a 4.54 to 1 rear axle ratio. Front axles have been strengthened. Brakes, which are again of the Steel-draulic type, are now 14 in. in diameter as against 12 in. formerly.

The frame section has been increased to  $8 \frac{1}{16}$  by  $2 \frac{3}{8}$  by  $\frac{5}{32}$  in. The double kick-up is retained. The gas tank is stamped so as to produce shallow internal ribs to prevent drumming. Rear springs are now 54 in. long.



*The powerplant of the Model C. The arrangement of accessories, integral water pump and fan drive and gearshift lever on the bell housing are features. Crankcase upper half and cylinder blocks are now cast in one unit*

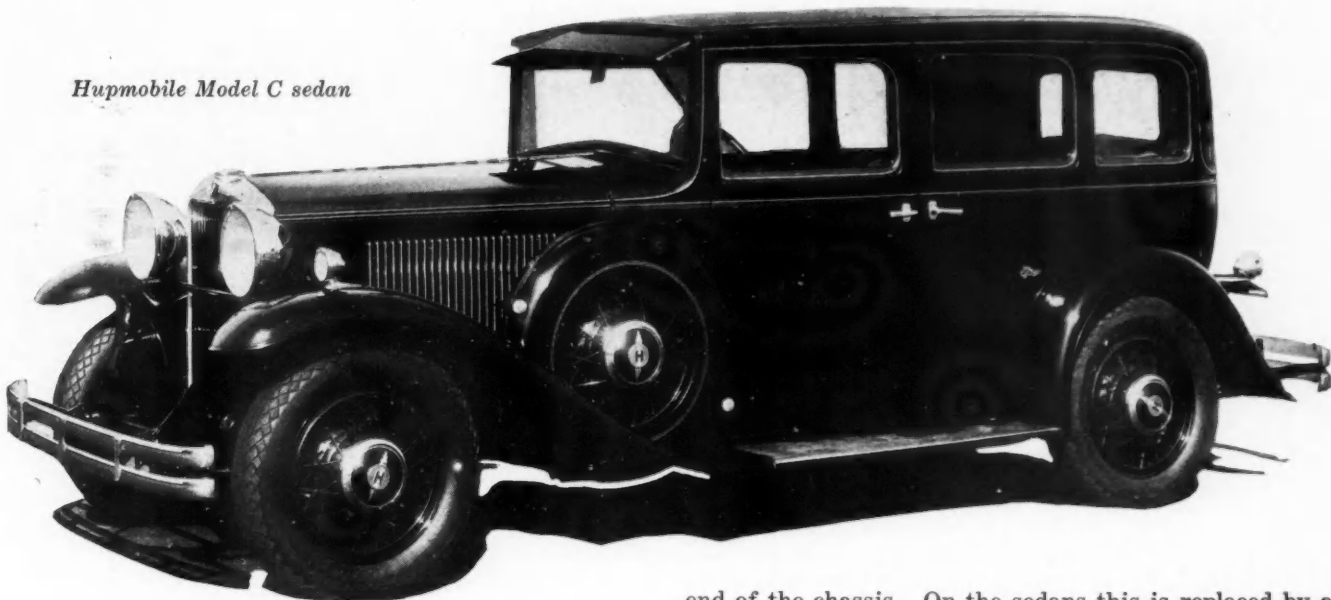
Exceptionally wide doors are now fitted, especially on the cabriolet. Rubber "ring" washers are used in the mounting brackets for the headlamp tie rod and tail light. Fender attachment bolts are provided with elongated steel plates instead of washers to prevent pulling out of fenders at these points in case of collision, etc.

The method of attaching rear fenders at the front end is also unusual. Instead of flanging the running board splasher for attachment to the fender, the fender itself is formed to fit the splasher contour, the material out of the corner being bent backward to form flanges for attachment to the extended splasher. Strip steel angle irons are used as a further means of reinforcement at the attachment point. Running boards are of steel for greater side protection.

An unusual construction is used in the cabriolet top to enable it to be folded more compactly. The top side bows, instead of being hinged in the center and folding lengthwise with the car, are hinged sideways at the rear, and fold cross-ways well back of the seat. In putting down the top, two quick-acting clamps are released at the top of the fixed windshield top crossbar, and the top swung back vertically. Next thumb screws are unscrewed at the front sides of the top which release the side bows, first one and then the other. As the side bows are folded on top of each other across the back the top material and padding are pulled out backward, and then pulled forward across the folded bows. Another advantage of this construction is that the top material is not injured by being clamped between the folded bows. All interior bows are in a stippled finish.

The cabriolet is further featured by a four-hinged door of exceptional width. The rear top section containing the plate glass rear window is removable as a unit, and is placed back of the seat in the package compartment. Chrome window and windshield glass mountings are found on this model as well as on the coupe. In the cabriolet, the same as on the fixed-top

Hupmobile Model C sedan



models, the rear-view mirror and wiper are mounted on the fixed-top crossbar, so that opening of the windshield will not affect their operation, the wiper being provided with a spring-loaded one-way universal mounting for this purpose.

Coupes and cabriolets also do not have visors, the peaked roof front extending only a short distance beyond the top windshield crossbar. At the rear of the two-passenger models the tail of the deck has a peaked keel design, fairing into the sheet metal over the rear

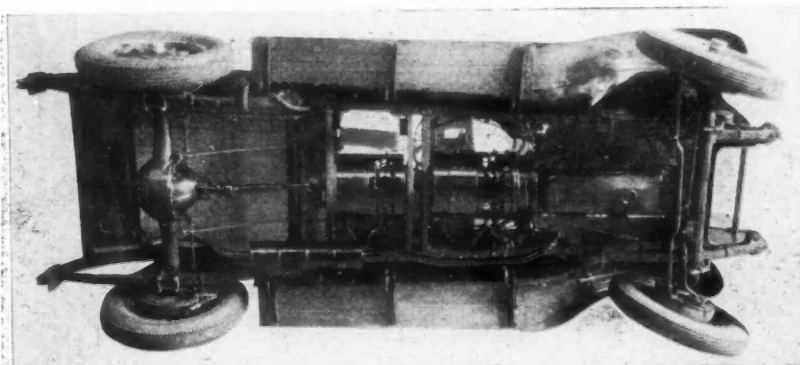
end of the chassis. On the sedans this is replaced by a reverse curvature at the bottom of the body panels to obtain the same fairing effect.

The top speed of the cars is said to be 80 m.p.h.

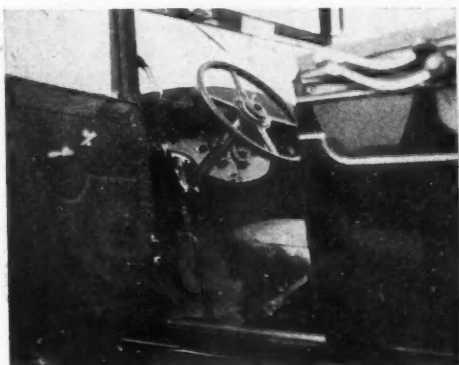
A feature of the Model C announcement is the unusually low prices at which demountable wheels are supplied. Below are the prices for such equipment:

Five disk wheels, rear mounting.....	\$30
Five wire wheels, rear mounting.....	45
Five demountable wood wheels, rear mounting....	55
Six disk wheels, custom equipped .....	75
Six wire wheels, custom equipped .....	100
Six demountable wood wheels, custom equipped....	100

## Custom-Built Gas-Electric Passenger Car



Details of the special car built for Col. E. H. R. Green by the Baker-Raulang Co. and the General Electric Co. are shown herewith. To the left is pictured the chassis indicating how the generator and motor are mounted. At the lower left is the driver's seat and dash, showing absence of gear shift lever. Below is Col. Green in a small storage battery electric, which he formerly used to take daily trips around his estate in South Dartmouth, Mass.





# Export Markets for Airplanes Are Definitely Established

*Purchases by Mexico and Chile, in addition to Canadian trade, in the first six months of this year, fix the fact that ships can be sold in quantity by responsible agents.*

By HERBERT HOSKING

**T**WO new and large markets for airplanes were developed during the first six months of this year. In that period, Mexico purchased 62 planes and Chile took 32. Of the countries to which American airplanes were exported, Mexico ranked first in the number of purchases and Chile ranked third.

In the Department of Commerce report in which the above figures were included, Leighton W. Rogers, chief of the Aeronautics Trade Division of the Bureau of Foreign and Domestic Commerce, pointed out that the development of these new markets was accomplished by practical demonstrations in the field. Canada, to which 44 planes were exported during the six months' period, was the second largest market outside the United States.

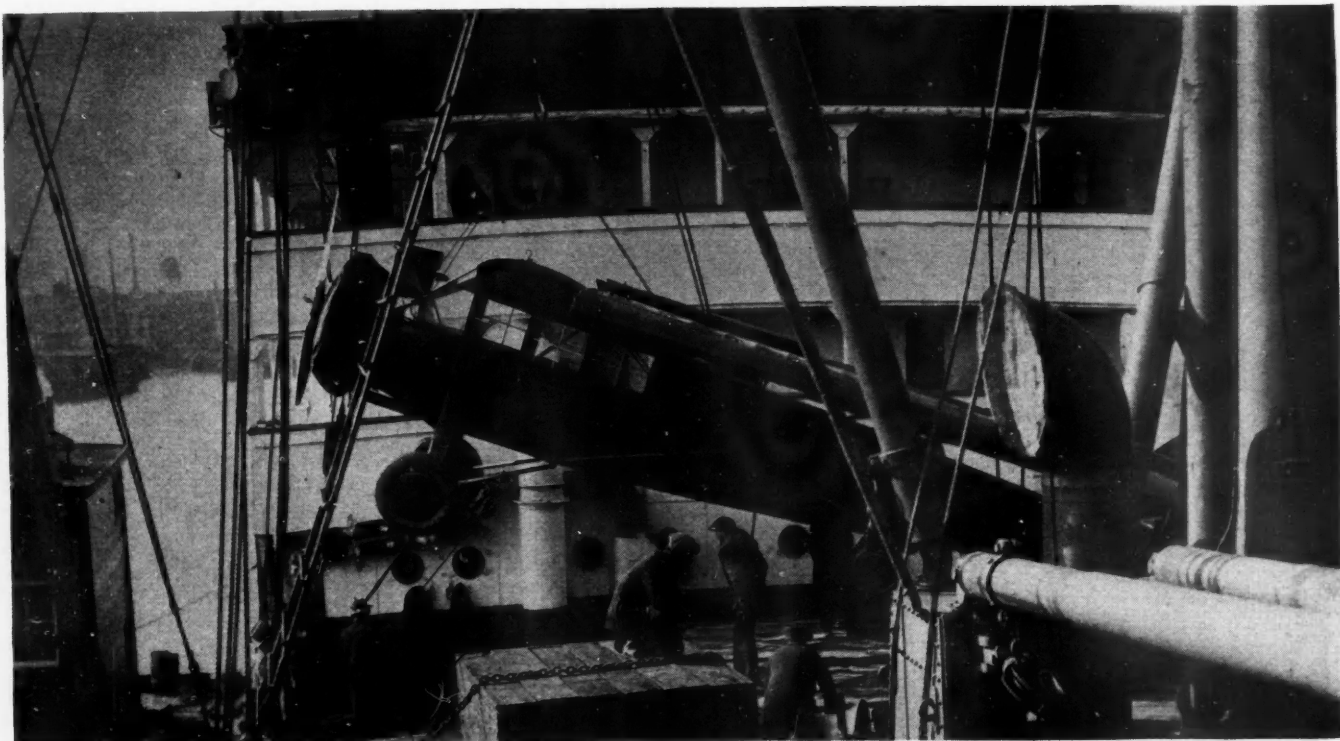
Consideration of these facts shows that of the three largest foreign markets for airplanes, two of them were countries contiguous to the United States, neither of them presenting insurmountable difficulties to the dem-

onstration of planes, or to the sale of planes on a "flyaway" basis.

Canada, for example, at the last census of her airplane landing facilities, had 33 airports and 23 seaplane harbors, and American consuls in Mexico report that there are registered commercial airports or good landing facilities near most of the large population centers.

During 1928, a total of 160,987 kilometers were flown by foreign planes visiting Mexico, and another 17,890 kilometers were flown by airplanes in advertising service. Most of the airplanes involved in these flights were presumably American, and the Cia. Mexicana de Aviacion is reported to be using American tri-engined planes in commercial service.

Several of the larger American airplane manufacturers have established plants in Canada. Other planes manufactured there are usually made by Canadian licensees of British manufacturers. In many of the British colonies and overseas dominions, the sale of



*Loading a Fairchild monoplane aboard a steamer for delivery at Callao, Peru, where it will be equipped with pontoons and used in the Peruvian Airways for passenger and mail service*

foreign aircraft is inhibited by the subsidization of air transport lines, with a proviso that the planes used shall be of British manufacture, or license. This is notably true in India, the Straits Settlements, and to some extent in Australia, and points clearly to one of the major difficulties confronting American airplane manufacturers who are entering foreign markets.

Of other difficulties encountered, perhaps the most fundamental is lack of adequate landing facilities in many countries. This not only precludes the possibility of demonstrating planes which might be shipped to these countries, but also leaves the prospective purchaser in the position of a man who owns gold fish, and has no bowl for them to swim in.

There are some countries with seacoast or riparian frontage where seaplanes or amphibion types can be demonstrated and are acceptable for commercial or sport use, and where the sale of American planes need not wait upon the development of landing facilities. This is true also of isolated groups of oceanic islands where rapid intercommunication may be desirable, but where the sparseness of population makes it unlikely that airports will ever be established. The shallow draft of seaplanes, or pontoon-equipped land types, enables them to penetrate many harbors which would otherwise be inaccessible to any but the smallest boats.

A second answer to the problem of selling planes where adequate landing facilities do not exist, is found in the sport plane of low landing speed, which can take off and land in a comparatively small area. Development of the export market should see much emphasis placed upon the adaptability of planes of this type to service in comparatively inaccessible regions. Appeal can be

### Foreign Aviation Progress

THE management of the *Chilton Aero Catalog and Directory* recently made a poll of American consulates in every country of the world with the object of determining the progress of aviation in the districts circularized. More than 175 replies were received to a letter incorporating the following questions:

1. What is the general status of aviation in the consular district you are assigned to?
2. Are there any factories actively engaged in the manufacture of aircraft within the district?
3. What are the airports in the district, and how are they equipped?
4. What are the names and addresses of persons or organizations within the district which are interested in aircraft promotion?

Much of the information contained in the accompanying article is based upon information supplied by American consuls in answer to the above questions, which were framed with the idea that the answers would be of value to American manufacturers of aircraft interested in the development of foreign markets. Detailed information regarding the possibilities for sale of aircraft in any section of the world will be furnished by the American consul in each locality.

made to both private owners and operators or potential operators of chartered transportation service.

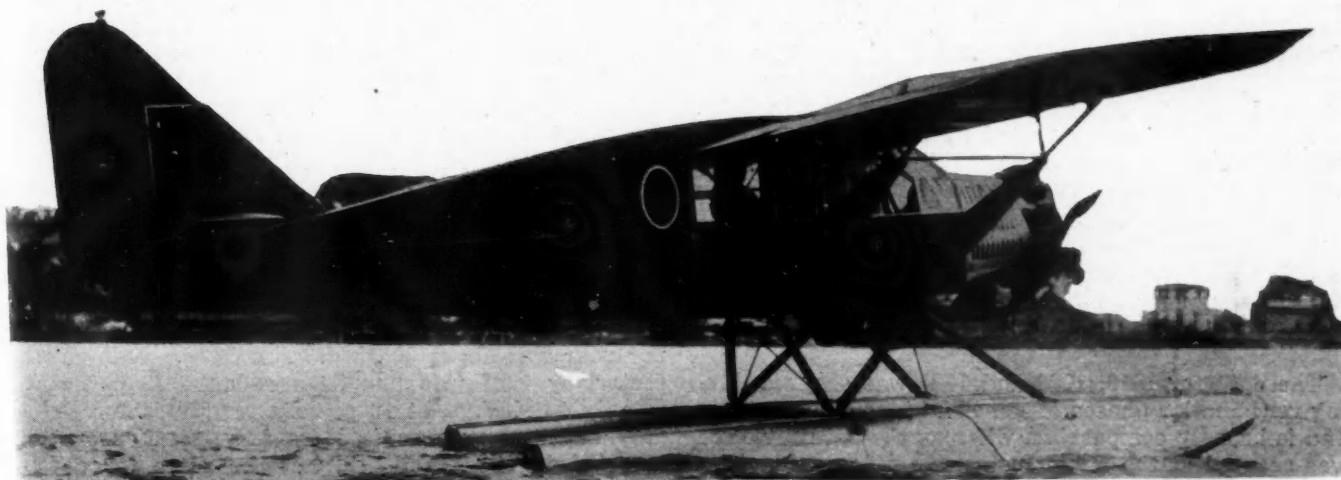
In the early days of the automobile industry, the first person to own a certain make of automobile in a new region almost automatically became the agent for that make of automobile, and the generally accepted maxim of the trade was that if you could sell one automobile in a given place you could sell many more on the strength of the initial sale, and by means of the natural pride of the first owner in his new acquisition.

To a certain extent, the same situation applies in the foreign market for airplanes. Most of the companies, which are cultivating actively the foreign field, make

every effort to get a demonstrator in service wherever possible. While this is desirable, resulting in the sale of at least one plane in the territory, it is evident from the material presented in the consular reports that there are many responsible organizations in countries all over the world, which are willing and capable of developing a market for American aircraft, even though they do not immediately invest in a plane for demonstration purposes. It is desired to emphasize here that appointment of such organizations as agents for American airplanes should prove beneficial to the industry as a whole.

Many of the firms reported as being interested in the sale of aircraft are old-established importing and exporting businesses with a sound marketing knowledge of conditions in the territory occupied. This, it would seem, would prove more profitable in the long run than the fact that the agent appointed was a qualified airplane operator.

Agencies not maintaining demonstrators apparently would accomplish the most in merchandising when the



Type of seaplane built for export by the Bellanca Aircraft Corp., an organization which is investigating a wider field of foreign sales





*A Ryan brougham, equipped with floats, which is a typical export model. The river bank at the right of the picture gives an idea of landing terrain in countries where fields are not available, an item which must be considered when planes are being sold in foreign trade*

plane represented possessed a quasi-international reputation. At the present stage of the airplane manufacturing industry, such reputations are acquired overnight through the newspaper publicity accruing from the completion of a successful endurance flight or other air feat. Publicity of this sort, which often attains an international circulation, will, it is believed, aid in the development of foreign markets for American airplane manufacturers by familiarizing the public with the accomplishments of American planes to an extent otherwise impossible, or on the basis of paid advertising copy circulation.

Even in the countries where the sale of American planes to air transport lines is hampered by the fact that the transport lines are operating under a subsidy which requires purchase of planes in the country granting the subsidy, there is nothing to prevent the sale of sport planes to private operators and operators of chartered service, where the plane is adaptable to landing in other than the official fields and harbors.

In some countries remote from American sources of supply there always will be the tendency for airplanes or other commodities to be bought from the nearest

nation making the commodity. Such is the case in Russia, which is a large purchaser of Italian airplanes. Development of a Russian market for American airplane manufacturers, for example, probably will be dependent upon the maintenance of an accessible warehouse stock of planes for assembly, and parts for their repair.

The problem of obtaining reliable firms to represent the American manufacturer of airplanes can be met through the ordinary credit channels, with the cooperation of the United States Department of Commerce and its affiliated agencies. How well these dealers or agents will perform their jobs will depend largely upon the amount of effort that the individual manufacturer is willing to put upon the development of a single market. Some of the larger manufacturers of airplanes and parts already have begun an extensive foreign sales program by forming export adjuncts to the parent company. That the foreign markets for airplanes have gone beyond the hopeful stage, into the field of actual accomplishment, and have become a definite factor in the sales program of the wide-awake manufacturer, cannot be doubted.

## Accomplishment In Management

A FAVORITE topic every two years is the apparently tremendous increase in the connected horsepower per employee reported by the Biennial Census of Manufactures. Because the cyclical movements taking place in all industry are ignored, there is a fallacy in comparing the data. For instance, the data for 1927 was secured during a period of marked cyclical contraction (depression), compared to data secured during a period of marked recovery in 1925.

The combined data reported by the Bureau of Census for the combined "Motor Vehicles" and "Motor Vehicle Bodies and Parts" is as follows:

Year of Census	Number of Employees	Connected Hp.	Hp. Per Employee	Per Employ Corrected
1919 .....	343,116	439,902	1.575	1.5
1921 .....		—Not reported—		
1923 .....	404,886	860,635	2.125	2.125
1925 .....	426,110	1,172,015	2.75	2.75
1927 .....	269,324	1,164,302	4.325	2.875

The data for 1919, 1923 and 1925 was secured during very similar phases of general industrial recovery and is broadly comparable, whereas the data for 1927 was secured at the lowest point of employment. The increase in the amount of connected horsepower per employee was actually three times greater from 1919

to 1925 than the increase from 1925 to 1927, instead of an apparently equal increase shown by the data for these periods.

Connected horsepower in "Motor Vehicle" plants only practically doubled in the seven years from 1919 to 1927, but the connected load per unit of production facilities actually decreased from one-fourth horsepower per car per year capacity available in 1919 to one-sixth horsepower by 1927. "Horsepower" actually increased from 1919 to 1925 at about the same rate as production facilities (capacity to produce) were increased.

The real accomplishment of management in the automotive industry is more apparent when we compare the technical advances made in the application of the connected horsepower available. It is estimated that, whereas in 1919 the electric capacity per unit per year was about 80 K. V. A. at 62 per cent power factor, by 1927 this had been reduced 50 per cent, to only 40 K. V. A. at 73 per cent power factor. Not only have savings resulted from the smaller capital invested in such facilities, but the rates for power have been reduced materially because of the higher power factor.



# Special Lubricants for Rear Axles Being Developed by Refiners

*Difficulties arising from increased engine power, without proportionate strengthening of gears, have been solved partially by laboratory and road tests of new compounds.*

By A. LUDLOW CLAYDEN

Chief Technologist, Sun Oil Co.

LOOKING back over a long period of automobile development, it is interesting to notice how the engineering interest of the whole industry has concentrated periodically upon different items. Development activities have passed from engines to springs, to rear axles, to bodies and back again to engines, with all the other incidentals taking their places in the process. Since the general adoption of the spiral-bevel gear drive, 14 or 15 years ago, rear axles have been almost forgotten. The great arguments which raged in 1916 about full-floating and semi-floating constructions are only dim memories. In fact, about all that has been done to axles in recent years is changes in brake forms, and these really are only incidental to the axle.

Engine outputs have been increasing in the meantime and car performance correspondingly improved, with the result that troubles with final drives, due to overloading, are beginning to appear. The situation has been intensified by the use of emergency brakes on the driveshaft, by means of which tremendous loads can be put on the differential.

Rear axle troubles have been more or less present ever since we had the high-speed bus, and have occurred quite often in truck-trailer combinations, where very heavy loads are handled at low speed, but there has been enough trouble in passenger car rear ends to have stirred up a great deal of activity in the industry.

The subject divides into two sections. Some manufacturers have been troubled by complaints of noise, others by actual failure of the differential gears. Doubtless the two are interrelated, both arising from excessively heavy tooth pressures, which in mild cases accelerate wear and produce noise, and in severe cases can cause actual seizure of parts. Undoubtedly, the ultimate answer will be a general redesigning of rear ends, providing larger surfaces, and so reducing the unit loading, but meanwhile much experimenting is being done with special kinds of lubricants. The typical rear axle lubricant almost always has been a heavy black oil which is quite cheap when produced in large quantities. It has always been known that better

lubrication could be provided by higher grade oils, and still more by oils compounded with other materials which have the effect of decreasing the coefficient of friction. Such compounds may take the form of light greases or may be fully fluid oils. Greases, of course, are made by compounding soaps of some kind with oil, and an oil with a low soap content, while perhaps really a grease, would not be recognizable as such.

Some oils of animal or vegetable origin are better lubricants than petroleum oils under conditions of very heavy pressure. For instance, pure castor oil is a very excellent lubricant for worm gears under certain conditions of operation, showing a lower coefficient of friction and a higher durability than a mineral oil. The drawback is that such oils are very readily injured by high temperatures, and pure castor oil cannot be used for most automotive work, because the temperature rise is enough to destroy the chemical structure of the oil. There are, however, a great many soaps which are as good as, and in some cases, have even a better lubricating value than castor oil, when they are in combination with mineral oil, and some of these soaps are unaffected by the temperatures developed in automobile axles.

Soap compounded oils have been used for a long time by a few people, some of them quite large consumers, and a good many excellent lubricants have been sold at retail to automobile users. The claim made for such lubricants usually has been improved quietness in operation, not only for rear axles but for transmissions as well. In some factories even today a supply of soap lubricant is kept on hand, and when a transmission on test seems to be just slightly on the noisy side, it is shipped filled with the special lubricant instead of the plain oil ordinarily used in the factory.

Among the soaps which have the most potent effect are those made from lead and animal oil. Red lead and tallow, or red lead and fish oil, can be combined readily to form lead stearate and lead oleate, both of which are soluble in mineral oil and can be added in any proportion, producing as a finished product anything from a thick oil to a solid grease.

Just why such compounded lubricants should perform the

LUBRICATION research is serving as an ally of engineering research in solving specific mechanical problems of automobile manufacturers. A. Ludlow Clayden, whose company has undertaken considerable research in the special lubrication field, finds that proper lubricants have prevented failure of gears that were insufficiently sturdy in design. He concludes, therefore, that motor vehicle users will take advantage of special greases that are now appearing on the market.

way they do is a matter of very indefinite theory. It is known, however, that as a general rule parts made of similar metals will seize more readily than similar parts made of dissimilar metals. A bronze-on-steel bearing can be used for much higher pressures than a steel-on-steel, without danger of seizure, although steel-on-steel can be used provided the lubrication is absolutely assured. Of course, in a bearing the surfaces are supposed to be protected by a continuous oil film which keeps them separated. Under such conditions, the lubricating property of the oil is of no importance; in fact, any fluid will lubricate provided it is supplied in large enough quantities to keep the surfaces apart. Lubricating becomes of importance when there is no proper film.

#### No Film on Gears

In gear operation, there is no real film. The tooth pressures squeeze out the lubricant, and the metal parts are not really separated. The oil which protects the teeth is that small portion which is actually taken up and absorbed by the surface of the metal. A piece of polished and hardened steel once wetted with oil cannot be freed completely from it (in the scientific sense) by washing with any solvent. Nothing short of regrinding the surface will remove every trace of the lubricant, so that the oil obviously enters into what might be called the surface pores of the metal.

Metals have the property of absorbing different amounts of different oils, and it is generally assumed that the low coefficient of friction of castor oil is due to its ability to soak into metals.

There are two possible theories with regard to the action of lubricants containing metallic soaps. One is that the soap improves the ability of the oil to enter the metal; the other, that the presence of even minute quantities of another metal may have an effect similar to that of introducing another metal between the two steel parts; but whatever the real explanation may be, the facts remain indisputable; that is to say, metallic soap lubricants, or at least some of them, will enable rear axles to be operated without injury under conditions which would cause rapid failure with plain oil.

Attempts are now being made to find out just what kinds of materials are most effective as compounding substances for transmission oils. Special lubricants which have been used and have been on the market for a good many years are mostly rather complex, containing not only one kind of soap but a mixture of soaps, and sometimes other substances as well. Possibly it is the impurities that are doing the work and not the soaps to which the qualities of the lubricants have been attributed hitherto.

A somewhat similar situation which never obtained

much publicity occurred upon the introduction of the modern types of steering gears which followed the balloon tire. The free moving types of gear, which have very largely displaced the older forms, have quite high pressures at the point of contact between the part operated by the wheel and the arm which it moves. Many such gears had a tendency to rattle when driving over rough surfaces, and this rattle could not be removed by adjustment. In a worm and nut gear, for instance, the surfaces are large and a sufficient body of oil is trapped between the parts so that no vibration can squeeze it out fast enough to cause a rattle, but with modern gears having much smaller surfaces, this is not usually the case. The first idea was to use very heavy lubricants, but these did not cure the trouble and had the additional drawback that in cold weather they would solidify and make the gear very hard to operate.

Some extensive research resulted in the development of at least one special lubricant which solved the problem. This was a compound of oil with a particular kind of non-metallic soap. It is a material possessing a certain kind of tackiness which prevents it from being squeezed out fast enough to permit a rattle to occur, while it does not have the drawbacks of extremely heavy lubricants. This particular material has been used almost exclusively for certain makes of steering gear when originally being packed by the manufacturers of the gear or of the car on which the gear is used, and even at the present time it appears unlikely that mechanical changes will do away with the demand for special steering lubricants.

It is improbable that rear axle difficulties will be left to the refiner for solution, but it seems almost certain that we are entering a period, probably of several years, when the use of special rear axle and transmission oils or greases will be quite general with automobile manufacturers. The most interesting phase of the whole situation is that laboratory and road tests have proved that some special lubricants do permit the satisfactory use of rear axle designs which are really just a little too light for the engines driving them. This means that such special lubricants will always reduce the rate of wear and will therefore be justified for continued use, at least in all heavily loaded trucks and buses. Manufacturers will not continue to ship their machines supplied with lubricants that are necessarily more expensive to manufacture than plain oils any longer than they have to; but the vehicle user who wants the utmost in durability will, in a year or two, have a fairly wide choice of special materials of quite reasonable cost which will keep a passenger car quiet longer than plain oil and which will reduce the maintenance cost on heavy vehicles much more than enough to justify the slightly higher price of the lubricant.

## Factory Dealer Relationships Hinge on Financial Aspects

(Continued from page 470)

Companion lines do often very difficult problems from a retail standpoint, our investigator friend reported, thus emphasizing from another angle some of the difficulties already recognized by most factories which have had experience along these lines. Looking back over the experience of the industry for a number of years it would appear that fully successful merchandising of companion lines has been considerably less common than

relative lack of success, although the terms themselves, of course, are open to varying definitions.

Generally speaking, it would seem as though factories in the future more and more will be getting the dealers' point of view—not vicariously or sentimentally, but by participating so much in the actual problems confronting the dealer that they cannot fail to get that point of view in the actual operations.



# Buses Fit Transportation Demands, A. E. R. A. Delegates Told

*More than a third of 200 exhibitors at Atlantic City auditorium represent automotive industry. Sixty bus models and chassis dominate showing and overflow to basement.*

THE American Electric Railway Association held its forty-eighth annual convention in Atlantic City this week with prominent speakers declaring that electric railways no longer dare scoff at the motor bus, and that the electric railway world has reached that era in its history when it must look to the motor bus for expansion of transportation services and to coordinated service for attainment of that elusive goal of all traction interests—more profitable operation.

In his address, Thomas N. McCarter, president of Public Service Coordinated Transport of New Jersey, placed the bus on a pedestal with opinions born of 26 years' experience that must also be entertained by the best minds in the electric railway field.

"I recognize, as every transportation man must recognize," declared Mr. McCarter, "that transportation on rails will indefinitely continue to be essential to mass transportation, and in its importance in the scheme of good service, yet I am forced to the belief that in the expansion and diversification of that service it is the bus that will play the most important part.

"In my opinion, the motor bus, which, even in our comparatively short experience with it, has been greatly improved, both in ways which increase its attractiveness to riders and those which affect its economical and efficient operation, affords an opportunity to transportation companies to create and at the same time meet new demands in the transportation field."

This tribute to the bus was matched by the interest shown in the automotive section of the exhibition held

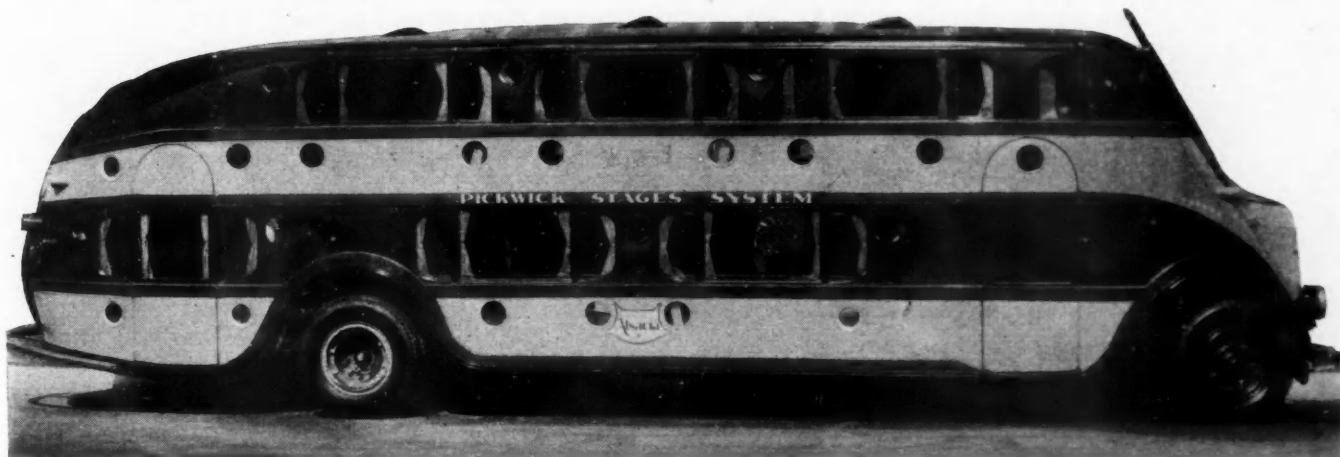
in connection with the 1929 convention. The exhibition this year was more a national bus show than it has ever been. Of the more than 200 exhibitors listed, better than one-third represented the automotive industry and occupied fully half the show space in the huge Atlantic City Auditorium. In the automotive section crowds were greatest and interest keenest, thousands tramping in and out of the buses on display and noting the trend to more luxurious appointments for the comfort and convenience of passengers.

## Two Special Trucks Shown

About 60 colorful bus models and bus chassis dominated the exhibits. The main floor was not able to contain them all, the overflow finding showroom in the basement.

It was noted that for the first time two special duty trucks found themselves in the company of buses. One was a high-speed service job for use in answering emergency calls of buses for roadside repairs and the other was a de luxe line repair job with a hydraulic lift platform. Two manufacturers were responsible for this innovation, an idea which others will very likely adopt in the future.

By far the most interesting, instructive and valuable contributions to every convention of the A.E.R.A. are the reports of the various committees. The reports presented at Atlantic City, adhered to the high standard of practical recommendations that automotive manufacturers have come to regard with favor, since they are



Pickwick System, of Los Angeles, displayed its "Nitecoach," a special type of all-metal compartment sleeping car with accommodations for 26 passengers, in the automotive section of the exhibition held in conjunction with the American Electric Railway Association convention at Atlantic City this week



the products of field experience and therefore priceless as manufacturing guides.

Among this year's reports were recommendations covering design principles and details of buses, motor coach lighting, brake performance and accessibility of wearing parts.

While finding it possible to effect some standardization of car equipment, the committee on "The Equipment" decided that the motor coach industry was changing so rapidly as to make it altogether too difficult at this time to attempt the standardization of the bus body into a few general sizes and types. It declared, however, that the same necessity for such standardization exists for buses as well as for cars, and by being confined to only the general size and type of bodies should be just as practicable. If the standardization idea were approached along these lines, the committee felt that attainment of that goal should be a reasonable expectation.

#### Safety Details Recommended

Passing over design principles with the recognition that buses are in a rapid state of development by manufacturers and the matter of design has not entirely crystallized, this same committee made the following recommendation with regard to bus details:

**Heaters**—Most buses are now using the exhaust gases for heating. In many instances this form of heating is proving unsatisfactory and one of two forms of heating probably will be used and further development done. Either air preheated by exhaust gases or the cooling system should be passed into the bus, or a hot-water system should be provided with the water heated either directly by the engine or by the exhaust gases.

**Ventilators**—In addition to the conventional type of roof exhaust ventilators, there should also be small openings with slide covers above the windows in the side of the bus, where the arrangement of window permits. It is desirable to be able to open the windshield a little in order to permit further ventilation.

**Holders for Supplies**—Boxes or holders should be provided for all supplies needed by the operator. The crank handle should be placed in a holder outside of the bus.

**Emergency Door**—The emergency door should be clearly marked and there should also be indicated the method of operation. This, of course, should be marked on the inside of the door.

Another committee gave consideration to the subject of accessibility of wearing parts. At its meetings parts of some makes of buses which are difficult to remove

or service were discussed, but it was not felt advisable to mention such parts in an association report. The committee believed that all that could be done with this subject was to stress to manufacturers the importance of accessibility of all parts of the buses which are subject to wear and maintenance.

#### Desirable Brake Performance

After a study of what is desirable in brake performance, this committee made the following observations and recommendations:

Because of the various combinations and characteristics of friction materials now in common usage, and which are prime factors in foundation brake design, any attempt at this time to prescribe standards for foundation brakes or metallurgical content of drums, other than to indicate desirable performance characteristics, only serves to impose objectionable design restrictions. Desirable brake performance characteristics covering the design of new equipment include:

1. Provision for adequate control of the vehicle under all normal operating conditions, without excessive driver effort.

2. Retardation characteristics to comply with existing and proposed regulatory acts, also comparable with those of other classes of vehicles operating on the same roadway.

3. Uniform efficiency under all conditions of loading, and operating conditions (traffic, grades, climatic) without excessive heating.

4. Maximum mileage between brake adjustment and renewal of friction surfaces.

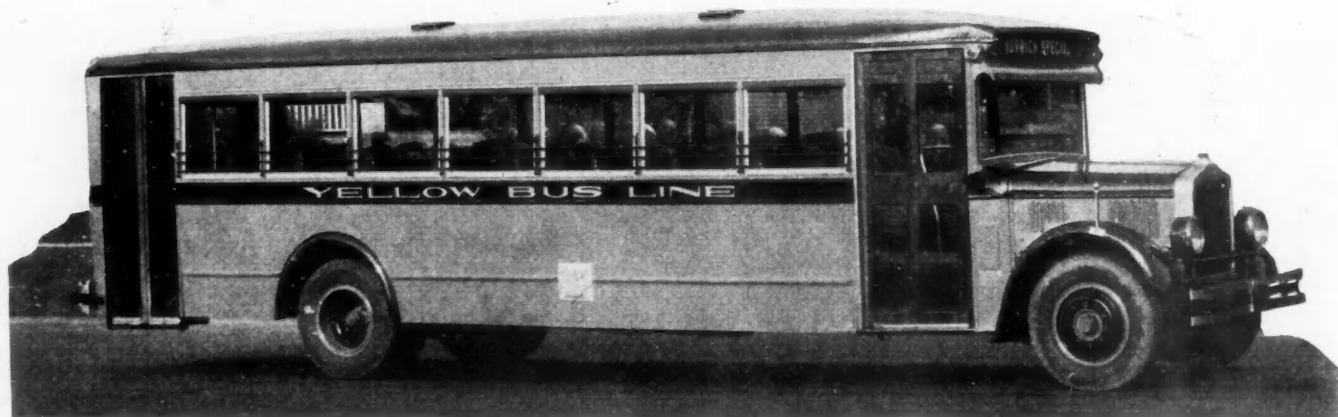
5. Simplicity of adjustment and renewal of friction surfaces.

Attention is directed to the increasing number of states specifying stopping distance limitations in their motor vehicles acts, a maximum permissible stopping distance of 50 ft. from 20 m.p.h. being common, and 45 ft. already in force in one state.

Because of the increasing use of power brake equipment for buses it is recommended that engines designed primarily for bus service have provision for an air compressor drive, and a  $\frac{3}{8}$ -in. pipe tap in the intake manifold for vacuum brake attachment.

Lighting was the subject of a very thorough report by a special committee. These recommendations were made:

1. The position of the normal reading plane should be a 45-deg. plane at a height of 33 in. above the motor coach floor at the seats. (Attention was called to the



The White Co.'s Model 54A, for suburban service, with a wheelbase of 250 in. and a capacity payload of 38 passengers, was exhibited at the American Electric Railway Association convention held in Atlantic City this week

fact that in measuring intensities sufficient readings should be taken to insure a fair average of the illumination throughout the motor coach.)

2. For adequate and comfortable illumination in motor coaches an average minimum intensity of 6-ft. candles, measured on the normal reading plane, should be provided. This value of intensity may be obtained by employing the standard 21 cp. lamp with an efficient diffusing or reflecting accessory, one unit mounted over the center of the back of each cross seat. In cases where baggage racks or the type of ceiling construction prevent placing a unit over the center of the backs of cross seats, a single row of units should be mounted on the ceiling along the center line and supplemented by properly designed fixtures located in the wall above the back of each seat.

3. Consideration should be given to proper illumination of the ceiling and

upper side walls to enhance the general appearance and provide an adequate lighting intensity on the advertising cards carried in certain types of buses.

4. Careful consideration should be given to the selection of proper types and sizes of reflecting accessories and adequate light sources for interior lighting, headlighting, rear end marking and other accessory lighting essential for safe and efficient operation of motor coaches.

5. Adequate generator and battery capacity should be provided for the lighting installation in order to avoid operating lamps under their normal rated voltage.

6. The headlining of the motor coach should be finished in a light color to secure the greatest possible efficiency in the utilization of natural and artificial light.

Lamps of 15 cp. were recommended in certain types of signals, signs, inspection lamps and for illuminating the step. Lamps of 3 cp. were recommended for the tail light and license plate illumination, instrument panel, marker lights and fare box.

#### Applied to City Service

It is obvious from the foregoing that the recommendations deal with buses used in city service, and certain types in interurban service. They would hardly apply to the de luxe jobs used for long hauls where passengers traveling at night prefer the cozy atmosphere of dim lights and few of those, or else no lights at all.

Another subject recommended for study and report next year was that of designs of batteries and generators for motor coaches which would combine adequate

lighting capacity with minimum size. It was urged that motor coach chassis manufacturers and engine builders be appointed on this committee.

A paper dealing with the Massachusetts compulsory liability insurance law, presented by Philip G. Carleton, general counsel of the Eastern Massachusetts Street Railway Co., Boston, contained some highly informative data. Mr. Carleton investigated three aspects of the

law: its effect upon the number of accidents; its effect upon the number of suits, and its effect upon the size of the verdicts. The conclusions he arrived at were that the law had apparently caused a substantial increase in the number of motor vehicle accidents; had apparently caused a substantial increase in the number of suits on account of such accidents and that the size of the verdicts had probably increased, too, but the evidence available was not sufficient to



An interior of the Mack Model BK bus, exhibited at the American Electric Railway Association convention. Note that the baggage racks are arranged overhead, and are capable of holding the average traveling luggage

justify a positive conclusion on the last item.

General Motors Truck Co. exhibited its line of Yellow coaches, including a chassis with gas-electric drive. The Model Z-240, one of the latest models of the line, was described in detail in *Automotive Industries* of May 4, last.

#### Special Sleeping Coach

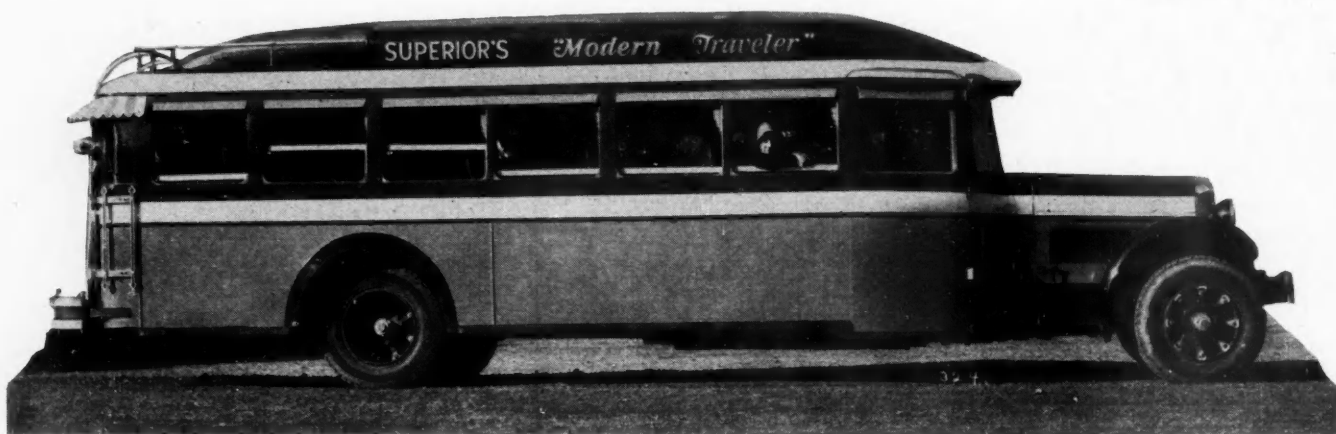
Pickwick System of Los Angeles exhibited a model of its sleeping coach for night travel. In a partitioned-off section of the large basement there were exhibits of Bussing Motors Co. of America and of Brooks Steam Motors, Inc., the former exhibiting a six-wheeled chassis and the latter a complete steam bus.

The exhibit of The White Co. included six buses, ranging in seating capacity from 12 to 41 passengers, and a stripped chassis finished in white duco.

The White Model 54 chassis was shown with two body types, the "Palace Pullman of the Highway," seating 25 passengers, with auxiliary seats giving a maximum capacity of 31 passengers, and the combination 16-passenger, baggage and express bus, the capacity of which can be increased to 21 passengers.

Model 54, one of the largest buses of American manufacture, has a wheelbase of 240 in. The engine cylinders, which are of 4 $\frac{3}{8}$ -in. bore and 5 $\frac{3}{4}$ -in. stroke, giving a total displacement of 519 cu. in., are cast in a single block. Engine lubrication has been worked out so that pistons, cylinders and other moving parts are under a constant spray of oil, forced through metered passages by a pressure feed system. The steering gear is of the cam-and-lever type, with a 16 to 1 reduction at





*The Studebaker Corp. of America exhibited its full line of eight-cylinder buses at the American Electric Railway Association convention. Above is the 25-passenger parlor car model*

the middle point. The clutch, which is of the two-plate disk type, is air-cooled, the central member having impellers which give a positive circulation. Metal-to-metal air brakes of the Westinghouse type are standard equipment.

#### White Passenger Express

Aisle chairs provided on this model increase the capacity from 25 to 31. There is a full observation rear, and all exterior metal parts are chromium plated. The Bender pipe heating system is used with a special fan arrangement for ventilation. In the passenger-express bus a 36-in. door gives access to the baggage compartment, and five taxi folding seats are carried to afford additional passenger space.

The White Model 54A is of the same general specifications as the Model 54, except that it has a wheelbase of 250 in., and in order to obtain the greatest possible pay-load space, the dash is brought forward in relation to the engine block, so that the rear cylinders come within the body. An aluminum casting is used to enclose this part of the engine. This model was exhibited with a 38-passenger pay-enter body with all seats facing forward. It has a 23-in. aisle, which is unusual for a 96-in. width limit. Front and rear doors are air-controlled, with an interlocking device which prevents starting until all doors are securely closed. The newly developed Bender high-back 36-in. seats, formerly used only in semi-de luxe models, are standard equipment. The fare box mounting has been moved back to give passengers freedom of entrance and exit. Without the rear door the capacity is increased to 41 passengers, not including the driver.

The White Model 65 is a six-cylinder type of 180-in. wheelbase and is equipped with a Bender body seating 18-21 passengers.

As in Model 54A, the dash is brought forward in relation to the engine block. This model has 4 by 5¼ in. cylinders (396 cu. in. displacement). Combustion chambers are machined to insure equal compression in all cylinders, and aluminum alloy pistons of the constant clearance type are fitted.

The "Palace Pullman of the Highway" body has 36-in. seats of the high-back, head-rest type, and an improved ventilating system which is said to insure adequate ventilation throughout the bus. Non-shatterable glass is used, and the one-piece windshield affords the driver extraordinary vision.

For short-haul and feeder service The White Co. showed its Model 61, which is available in 148 and 170-in. wheelbases, and is powered with a six-cylinder

seven-bearing crankshaft engine. Four-wheel hydraulic brakes are fitted. The White Model 50B chassis, an earlier model, was shown with a Bender body of special design as developed by H. H. Hanson of the Middlesex & Boston Railway. Specially wide aisles and unusual head room feature this body type. The interior is finished in Red African mahogany woodwork, and the seats are upholstered in mohair plush.

Mack-International Motor Truck Corp. exhibited a variety of buses of its extensive line and featured a six-cylinder chassis with 265-in. wheelbase known as the Model BK.

One of these chassis was shown with an interstate body, which is 96 in. wide, this great width permitting comfortable seats for all passengers and leaving room for a wide center aisle. Reference to the illustration of the interior of this body will show the inside baggage racks, which will accommodate quite bulky baggage, but are so arranged that they cannot be seen from the outside.

#### Mack Bus Engine

The six-cylinder engine has a bore of 4⅝ in. and a stroke of 5 in., and is rated at 126 hp. It has L-head cylinders with offset combustion chamber and heads which are detachable in pairs. Cylinders and heads are cast of chrome-nickel iron, and are heat-treated. The crankcase is made of aluminum alloy and is also heat-treated. In accordance with the usual Mack practice, the crankshaft is made of low carbon steel, case-hardened, and is provided with integral counterweights. Main journals are 3½ in. in diameter and are supported in bearings lined with hard babbitt and diamond bored.

Crankcase ventilation is secured by breathing through the rear valve spring cover, from which a flexible tube extends to the carburetor intake. This crankcase ventilation system serves several purposes. It draws off all vapors as the engine cools and burns them, thus preventing dilution of the crankcase oil; it gives top lubrication because oil vapors from the crankcase enter the combustion chambers and settle on the walls; finally, the slight vacuum in the crankcase reduces any oil leakage.

A Stromberg double-throat carburetor is fitted, and both throats supply mixture to all six cylinders. An Air Maze air filter is furnished. Battery ignition is used, and all electrical units of North-East manufacture, the generator having a capacity of 500 watts and the starter driving through a Bendix pinion.

The cooling system comprises the usual centrifugal pump, which is driven through a cross shaft and has its impeller mounted on a ball bearing which takes all



thrust. The pump has an aluminum casing, a bronze rotor, a stainless steel shaft and a brass cover. The cooling system is arranged to give combined pump and thermo-syphon circulation, and it embodies the cold circulation principle. When the water in the engine jackets is below a certain temperature, that moved by the pump circulates through the radiator only. In addition to the provision of a thermostat, the chassis is also provided with radiator shutters controlled by hand, the principal purpose of these being to make it possible to retain the heat in the cooling system during short stops.

A single-plate improved clutch is being used, the pressure plate having been made heavier to resist warping when slipping. Improvements have been made also in the clutch brake. Little change has been made in the transmission, which has all of the characteristics of the Mack four-speed transmission described and illustrated in these columns some months ago. The transmission has two cast-steel end plates which contain the bearing mounts and also serve as supporting members, supporting the unit on the main frame through four shock insulators.

A "grindstone type" of emergency brake is regular equipment, the short shaft carrying the brake drum being supported from two frame cross-members on ball bearings. The drive to the rear axle is by hypoid gears the pinion shaft axis being below the gear axis. This hypoid gear is combined with a drop-forged axle housing similar to that used on other Mack models, the "banjo" being inclined at an angle of 45 deg. Spring seats are forged integral with this housing, and the rear springs are underslung.

#### Steering Gear Redesigned

Four-wheel internal mechanical brakes are fitted, and Westinghouse air brake equipment is standard. The front axle is substantially the same as on former Mack large buses, but the steering gear has been redesigned and a worm gear sector is now being used in place of a complete wheel. The steering drop arm is fastened to the sector shaft by means of a serrated instead of a square joint, and a wood steering wheel is used in place of the former Mack molded rubber wheel. The steering post, however, continues to be mounted in two shock insulating brackets. The three front cast-steel outriggers are fitted with shock insulators. Lovejoy hydraulic shock absorbers are standard equipment all around. An increased number of tubular frame cross-members is used as compared with former Mack models. The tire

equipment consists of 9.75-in. pneumatics on 22-in. Budd wheels, duals in the rear.

#### New ACF Single-Deck Bus

American Car & Foundry Motors Co. exhibited, among other models, its new single-deck, 38-passenger bus with 175-hp. Hall-Scott engine, and also a chassis of same. All passengers are seated in individual chairs and face forward, and the overall length of the bus is only 33 ft., the wheelbase being 264 in.

The Hall-Scott engine has a bore of 5 in. and a stroke of 6 in. (706.8 cu. in.). It has a fully balanced crankshaft and a torsional vibration damper. The output is upward of 175 hp. at 2000 r.p.m. The cylinder head, which is cast of hard nickel-iron, is detachable and contains the valve seats and valve passages. The valves are inclined at an angle of 15 deg. and are operated by an overhead camshaft. The camshaft is located in an oil trough extending down the center of the engine head and is driven through a celeron helical gear with steel center. All rocker arms are mounted on a tubular shaft with pressure lubrication. Liners of chrome-nickel cast iron are inserted in the cylinder block.

Aluminum alloy pistons of the constant-clearance type are fitted. Two invar-steel rings are cast in each piston, one at the lower edge of the skirt and the other immediately above the piston pin bosses. The crankshaft is of the seven-bearing type, with main bearings 3 1/4 in. in diameter. Silent chain drive is used for the camshaft, fan, water pump, distributor and air compressor, a second chain of the same type driving the fuel pump, oil pump and generator. Each chain can be separately adjusted for slack.

Both parts of the crankcase are aluminum alloy castings, and the flywheel housing parts are cast integral with them. Main bearing caps are of malleable iron and are held in place by "through" bolts.

Zenith dual carburetors of the side-outlet type are fitted, each half of the carburetor supplying three cylinders. The inlet manifolds are water-jacketed and the flow of water through them is controlled by thermostat. Gasoline feed is by a positive drive Sylphon pump. Dual ignition is used from separate coils connecting through a semi-automatic distributor to spark plugs on opposite sides of the cylinders. The 600-watt generator is of Delco make and the starter is provided with a Bendix drive.

In addition to the cylinders and head, the intake manifold and the air compressor head are water-jacketed,



*The new Mack Model BK interstate bus, designed for long distance transportation, was part of Mack Trucks, Inc., exhibit at the A.E.R.A. convention at Atlantic City this week. The bus is equipped with interior baggage racks*

and the temperature of the cooling water is regulated by thermostat. Crankcase ventilation is provided for, the air and vapors drawn from the crankcase being taken through the Air Maze air cleaner into the carburetor.

#### Transmission Innovation

The clutch is of the double-plate type, with a driven member of very low inertia. Spring and frictional damping is used to prevent the transmission of engine vibration to the transmission. An innovation introduced in the design of the transmission is that the two shafts are located in a plane inclined at 45 deg. Roller bearings are used on the main and secondary shaft and are adjustable from outside the case. The transmission gives three forward speeds, the low speed reduction being 4.32 in 1. The driveshaft to the rear axle is made in three sections, with four universal joints. On the short central section, which is hung in ball bearings at both ends, is mounted the drum for the emergency brake.

The rear axle is of the full-floating type, with spiral bevel gear drive. Hotchkiss drive is employed. Axle shafts are of chrome-molybdenum steel, with a minimum diameter of 2 in., and the hub ends are upset into a 5-in. flange, which is cut with teeth that engage with corresponding internal teeth on the hub.

A specially designed drop-forged I-section front axle with a 2¾ by 4¼ in. section is employed. A screw-and-lever type steering gear is used, and to reduce the effect of spring action on the steering, the front springs are shackled at the forward end. Service brakes are of the internal air-operated type and act on all four wheels. Molded asbestos brake lining is used. Tires are 40 by 9.75 in. on all wheels, and the 12-ply balloon type is recommended. Houdaille hydraulic shock absorbers are fitted at the front.

Side rails of the pressed-steel frame are pressed in two sections, which fit together immediately in front of the kick-up over the rear axle. The frame rails have a maximum depth of 11 in., a width of flange of 4 in., and are made of ¼-in. stock.

Changes made in the engine of the smaller ACF model have increased the engine power from 100 to 120 hp. This increased power is obtained at substantially the same governed speed.

The Twin Coach Corp., in addition to its regular

model of Twin coach with two powerplants, exhibited a new smaller bus with a single powerplant designed for 21 passengers. It has a wheelbase of 140 in., and the single engine is located centrally in front, entirely within the outline of the coach body. The engine is covered with a hinged sheet metal hood, which is lined with asbestos for heat insulation on the under side and covered with leather on top to give it a more attractive finish. The engine is a six-cylinder Hercules, of 4-in. bore and 4½-in. stroke. It is combined with the single-plate clutch and three-speed transmission into a unit powerplant. There are two universal joints and one amidships bearing in the propeller shaft, and the final drive is by spiral bevel gears (instead of by worm, as in the larger model). Four-wheel air brakes are standard equipment, but vacuum-operated hydraulic brakes are optional.

There is an extra-wide door back of the front wheel, but the model shown at the show had no rear door. To utilize the body space most completely, a longitudinal seat for three is arranged on the right hand side alongside of the engine, while a longitudinal seat for two is placed on the left, back of the driver's seat.

#### Little Change in Dodge

Dodge Brothers Corp. exhibited two bus chassis, one street car type coach and one parlor type coach. Externally few changes have been made in these buses since last year, when they were known as the Graham Brothers coaches. The same powerplant is used in both models, but there are differences in the tire equipment and the tread. Among mechanical changes may be noted the use of American brake blocks for the four-wheel brake equipment and a heavier clutch with Hycos facings. In the body all sheeting is put on in overlapping panels, and cadmium-plated screws are used throughout. The roof is of the molded type.

The Studebaker Corp. of America showed its full line of eight-cylinder buses, including a 25-passenger parlor car with inside baggage space, a 25-passenger observation parlor car with special de luxe body, a 21-passenger observation parlor car with inside baggage space and a 21-passenger special street car body type. All of these buses are equipped with the Studebaker eight-cylinder engine of 3½-in. bore and 4¼-in. stroke, developing 115 hp. at 3200 r.p.m.

## Testing Radial Engines

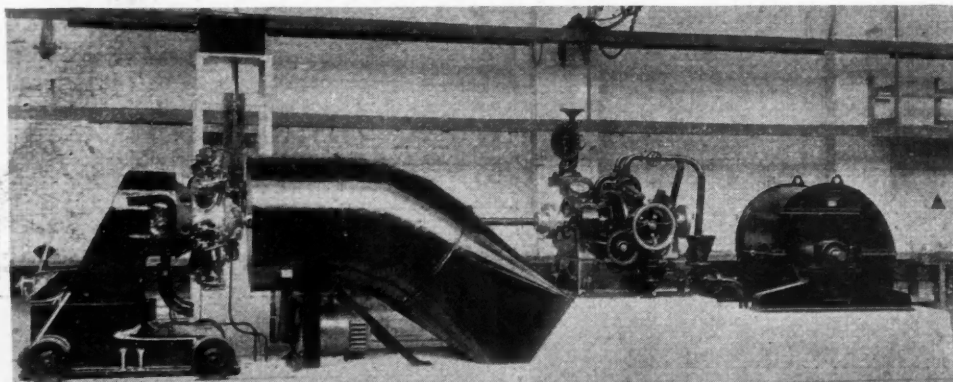
THE equipment used at the Armstrong-Siddeley Motor Company's plant in Coventry, England, for the brake tests of air-cooled radial engines is shown in the accompanying illustration. The largest engine

model manufactured by this firm is the 460-500 hp., fourteen-cylinder Jaguar.

The equipment shown is that used for the 215-230 hp., seven-cylinder Lynx engine. It is seen on its test

mounting, consisting of a trolley which is wheeled up to the mouth of an air tunnel. The tunnel dips to pass under a Froude water brake to reach the intake of an electrically driven exhaust fan; the coupling shaft between engine and water brake passes into the mouth of the air tunnel and out through the downtake of the casing.

This test is given all models before flight trials.





# Just Among Ourselves

## Stock Exchange Valuation Has No Economic Status

**A**UTOMOBILE stocks haven't been very popular with the trading element on the exchange lately, despite the fact that a good many automobile companies have been having a better year this year than they did last. While some issues probably have been over-valued in the bull market of the last year or so, there seems to be little economic justification for the nose-dive done by many automotive securities in recent weeks.

We can't help feel there is a deal of soundness in the opinion of one important car company executive who has had close Wall Street connections for many years, when he says that "The Wall Street valuation of a stock never has had any tangible relation to its earning value. Public opinion is the big factor and public opinion is largely a matter of publicity. I would almost go so far as to say that the present precipitous drop in motor stock prices is due to negative propaganda and that an equal amount of favorable publicity would turn the whole market abruptly the other way."

Certain it seems that, just as some motor stocks ran up by leaps and bounds on the basis of information which had little to do with the basic economic status of the companies, so some of them have gone the other way recently with just as little foundation in fact.

\* \* \*

## Selection of Convention Delegates Requires Care

**W**ITH the convention season upon us again, we are constrained to reiterate the need for automotive managements to (1) make up a convention schedule and then select those gatherings which it definitely wants some one or more of its representatives to attend; (2) select as company representatives at such meetings those men who, by reason of personality, mental

flexibility and intellectual curiosity, seem most likely to bring back from the meeting inspiration and ideas of some practical utility.

The man with the title which makes him the obvious company representative at a particular convention is not always the man who possesses these qualities. Nor is the man who "has the time"—who can best be spared from work always the best; usually he isn't, as a matter of fact.

We are strong believers in conventions and believe that the automotive industry has benefited in a major way from the meetings and activities of the various organizations which impinge upon its field, but we believe just as strongly that selection of conventions to be attended and selection of personnel to attend should be regarded by management as a definite piece of business routine. The total expenditure of any large organization for expenses of executives and employees attending conventions each year runs into thousands of dollars. The company has a right to value received for every dollar expended in this way; only through viewing and handling its convention attendance activities from a business viewpoint can such values be obtained.

\* \* \*

## Planned Models Need More Than Usual Sales Analysis

**W**HERE is the mounting total of automobile models going to stop—when, as and if? An enterprising business economist in one of our leading companies showed us the other day a chart he had drawn on which there was a vertical bar for every passenger car chassis model in existence today. He had to lay the chart down on the floor, so that we could get a good look at it—and the bars were fairly narrow and close together at that.

One look at that chart—

which simply presented graphically information everyone in the industry has as general knowledge—might make one think off-hand that profitable elimination of a good many models from an economic standpoint ought to be no Herculean task.

Yet closer study of individual lines almost certainly would prove the task to be infinitely difficult. When a given model in a given line brings in a gross business of a million or more dollars a year, any executive is going to think three times before he eliminates it—and yet such is the sale of many of even the less popular models in a number of important lines.

Certainly no sweeping general statements about the number of models which would be most economical can be made and have any chance of being true. It does seem to us, however, that each new model proposed by a given company should be analyzed from a rather basic statistical and marketing viewpoint in its relation to the market and the other models in the lines, rather than merely from an immediate sales or competitive standpoint, as is often the case.

\* \* \*

## Has Constant Change Become Permanent Routine?

**I**T can hardly be doubted that we still are in an era of rapid model change in the automobile industry and that we seem likely to remain in that era for a long while to come. From a sales standpoint, as one keen executive remarked to us the other day, we are up against the danger of merely selling change and neglecting to sell automobiles. Even so, constant change as a normal routine seems to have taken almost permanent hold on the business. The number and importance of the announcements to be made between now and January 10 will bear out that contention for the present at least.—N.G.S.



# Walter C. White Dies in Automobile Accident in Cleveland

*Pioneer in industry built up strong sales organization and headed White Motor Co., succeeding his brother, Windsor T. White*



Walter C. White

**D**EATH came to Walter C. White, president of White Motor Co., Cleveland, early Sunday morning in Cleveland after a 19-hour fight for his life, following an automobile accident which had occurred as he was driving to his office. An internal hemorrhage defied four blood transfusions. He was hurled 100 feet as another car crashed with his machine, and he suffered two fractures of the right leg and a fractured left thigh. His immediate family was with him when he passed away.

Mr. White was born in 1876, the year his father, the late Thomas H. White, organized the White Sewing Machine Co. He was graduated from Cornell in '98, took graduate work in the New York Law School and was admitted to the bar of that state.

In 1900 he returned to Cleveland and joined the White organization, which at the time was producing the White steam car. He became celebrated as a pioneer cross-country driver in the early reliability tours in which Alexander Winton and Henry Ford played important parts in demonstrating the endurance of automobiles of the day. He represented the company in Europe from 1901 to 1904, winning a number of the first continental awards for endurance tests. Returning to this country he developed the distributor-dealer organization of the company, and several years ago succeeded Windsor T. White, a brother, as president of the company.

## Extensive War Service

During the war he was appointed by his fellow-townsmen, the Hon. Newton D. Baker, then Secretary of War, as chairman of a committee to coordinate Allied truck troop transportation. He carried on an extensive survey with European officials, and was asked to head the Interallied Transportation Commission, which administered rail, barge and highway movement of troops and supplies. For his service he was cited by the British Government and was awarded the Croix de Guerre and made a Chevalier of the Legion of Honor by the French Government.

Outside of his business Mr. White's chief interest was his farm, the Circle W, near Cleveland. It was here

that he organized one of the most successful hunt clubs in the Middle West. His modesty, a characteristic said to have been acquired from his father, prevented anyone but his close friends and business associates from knowing him with great intimacy. One day this writer had to talk horses and cattle for more than four hours to learn the story of Mr. White's early experience as a salesman, in which field he made his mark as a leader in the automotive industry.

## Experience With Steam Cars

"I had heard the engineers at the factory tell about the fine qualities of the steam car," Mr. White said on that occasion, "and concluded that I could sell them like hot cakes in London. Father sent me over with a touring car, plenty of parts—we needed them those days—and proposals for selling royalties on patents we owned. It was a complete flop until I began to get acquainted with the people. We organized a little sales group of a few men who had been in the game. I found that to sell in London one must have the Londoner's point of view. I demonstrated the car at military maneuvers where important men were gathered, and drove to the races where society people gathered. It wasn't long before I found out what was wanted in cars. It cost the company a lot of money, but we've applied that principle to our truck sales and made that investment pay large dividends."

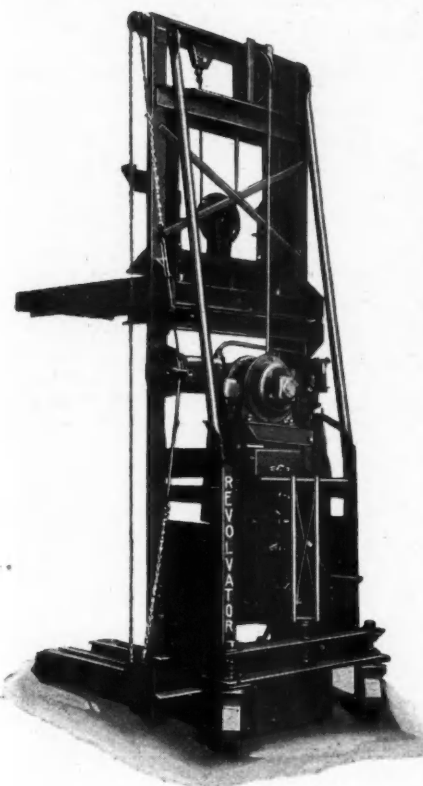
Mr. White was a member of the board of directors of the National Automobile Chamber of Commerce and was active as a member of the truck committee of that organization. He was also a member of the Society of Automotive Engineers.



# NEW Automotive DEVELOPMENTS

## Revolvator Hoist

THE Revolvator Co., Jersey City, N. J., announces the Model M, a new silent-chain motor-driven hoist which can be used on any type of base, hinged or telescopic frame, or



Motor-driven hinged type  
Portelator with Model M  
hoist

with any style of platform. A reversing switch with the usual three positions is provided and is directly connected with the mechanical brake, so that the operation of shutting off the current automatically applies the brake.

The platform can be provided with an automatic safety device which prevents its sudden drop should the cable become slack or break. In that event the cast-steel jaw-tooth safety cams set against the flange of the upright frame, thus holding the platform in position.

The 2000-lb. Revolvator or Portelator, to which this hoist may be applied, operates at an approximate lifting speed of 35 ft. p. m. Other models are built with capacities of 4000 and 6000 lb. Model M has a floor-locking device, which provides four widely separated points of support, making the machine rigid on the floor when loads are being handled.

An automatic mechanical top and bottom limit, operated by the control chain, brings the platform to a stop when it reaches the top or bottom of the machine. Each machine is equipped with motor, 25 ft. of electric stage cable, reversing switch, plug, receptacle and wall box. When a direct-current motor of 2 hp. or more is specified, an automatic starter is included.

## Universal Vacuum Shift

A VACUUM gear shift for motor cars has been placed on the market by the Universal Gear-Shift Corp. of New Haven, Conn. The actual shifting of the gears in the transmission is accomplished by the difference in gaseous pressures in the inlet manifold and in the atmosphere. Two power cylinders are provided which are mounted on the car frame back of the transmission. A control valve is located on the steering column under the steering wheel. From this valve there are tube

connections to the inlet manifold and to both ends of both cylinders, small copper tubes being used. By means of the control valve either end of each power cylinder can be placed in communication with the inlet manifold.

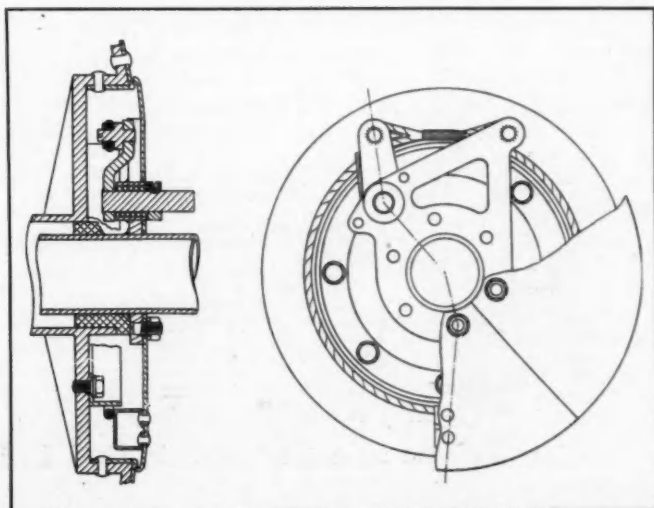
The power cylinder pistons are connected by pushrods or links to a pair of drop-forged levers mounted on a top plate which fits the transmission housing. These drop-forged levers are rigidly connected with the shifter forks which shift the gears in the transmission. In applying the shifter mechanism to a car, the old transmission cover with the gear-shift lever is removed, and the top plate carrying the drop-forged levers can be fastened in position without drilling any additional holes.

## Wilhart Airplane Brake

A BRAKE of simple design and inexpensive to manufacture has been evolved for use on aircraft by Paul H. Wilkinson and Frederick Gebhart of 826 South Kenmore Avenue, Los Angeles, Cal. It incorporates a number of novel features on which patents have been applied for.

The brake consists of a small drum and a length of flexible stranded cable completely encircling same. The ends of the cable are spliced, one end being secured to a stationary bracket plate mounted on the axle, and the other attached to an operating arm pivoted thereon. A small movement of the operating arm brings the cable into contact with the drum and a uniform radial pressure is exerted on the periphery thereof. The points of attachment of the ends of the cable are offset to permit the latter to pass each other, and a small guide at the bottom of the drum prevents lateral displacement of the cable. The drum is aligned with the wheel by means of depressions formed around the bolt holes which register with similar depressions in the wheel itself. A removable cover plate, made in two parts, is secured to the bracket plate by six nuts.

It is claimed for the brake that it is light and compact, and withal rugged. Allowance for lubrication of the friction elements is made in its design. The cable



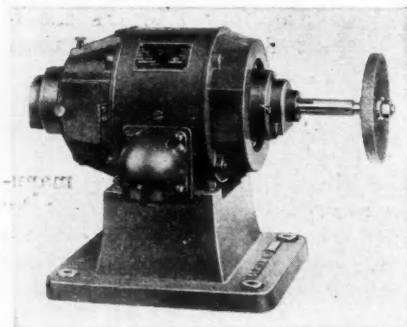
Sectional views of the Wilhart airplane brake

assembly is in accordance with standard airplane specifications and can be replaced at any airport. It is possible to install the brake both as a self-energizing and a plain type. The mechanism is protected by the cover plate, and the brake can be inspected and serviced by merely removing the cover plate and without removing the wheel itself. Adjustment is made by changing the position of the operating lever on the outside.

## Blount Tap Grinder

THE J. G. Blount Co. of Everett, Mass., announces the development of a new machine for tap grinding. It is driven by a  $1\frac{1}{4}$  hp. Westinghouse type SK motor.

Various sizes of grinding wheels for grinding tap flutes can be mounted on the end of the spindle. For the grinding of small taps, wheels of small diameter and width are used, while on larger taps grinding wheels up to 6 in. in diameter and  $\frac{1}{2}$  to  $\frac{3}{4}$  in. in width are employed.



*Blount tap grinder*

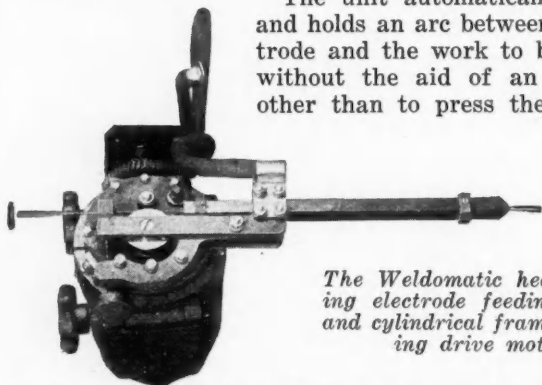
These grinders are self-contained, being driven by a direct-connected, enclosed ball-bearing motor with a speed range of 4000 to 7000 r.p.m. The motor is controlled by a field rheostat so that any grinding speed up to 7000 r.p.m. may be obtained.

This new tap grinder will be shown at the Machine Tool Builders Exhibition at Cleveland.

## Westinghouse Weldomatic

THE Westinghouse Electric & Manufacturing Co. announces the development of the "Weldomatic," a new and improved automatic welding outfit. The Weldomatic equipment is complete with electrode feeding device, control cabinet and operator's panel. It is designed to operate with equal satisfaction from either Westinghouse variable voltage or constant voltage welding motor generator sets.

The unit automatically strikes and holds an arc between an electrode and the work to be welded without the aid of an operator other than to press the starting



*The Weldomatic head showing electrode feeding device and cylindrical frame enclosing drive motor*

button. The feeding device is compact and permits ready application to work handling tools. The drive motor is mounted in a cylindrical frame which supports the nozzle assembly. The nozzle has adjustments for being moved in two planes, and the nozzle assembly can

be reversed very easily to be either a right-hand or a left-hand assembly.

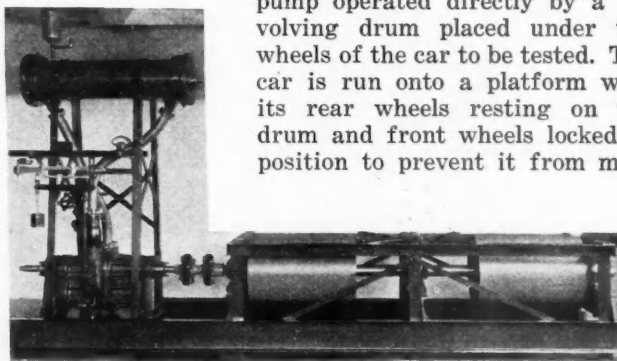
The control units are mounted in a cabinet which may be conveniently located with respect to the head and operator's panel. A small motor generator set in the cabinet automatically controls the head motor to change its speed and the direction of electrode feed as required by arc conditions. During the welding operation the control motor generator set is the only moving part in the control system.

The operator's panel has a "start" and "stop" push-button station, with large buttons to facilitate its operation with gloved hands. A rheostat controls the arc voltage, which is recorded on a voltmeter, over a wide range. A switch on the panel also permits the operator to reverse the direction of the head motor to retract the electrode from the work under power.

## Fluid Dynamometer

METAL STAMPING CO., Long Island City, N. Y., has placed on the market a new and larger fluid dynamometer for testing horsepowers above 90. This machine is known as the C-3 car-tester.

The device consists of an oil pump operated directly by a revolving drum placed under the wheels of the car to be tested. The car is run onto a platform with its rear wheels resting on the drum and front wheels locked in position to prevent it from mov-



*The C-3 car testometer*

ing. With the machine running, the rear wheels drive the drum which in turn drives the pump forcing the oil through the control valve into the cooling system and back again to the pump.

The pump itself is suspended on ball bearings. One side is rigidly attached to a large scale beam so that the torque produced by forcing the oil through can be accurately measured. An electric tachometer connected to the pump gives the number of revolutions per minute that the wheels are making and is also scaled to read directly the miles per hour at which the car would be traveling if on the road under those conditions. A chart is furnished for determining the horsepower from the tachometer reading and the torque measured on the scale beam. By operating the control valve the load on the car engine can be varied from almost nothing to one sufficient to stop the car.

## Rite Speed Lathe

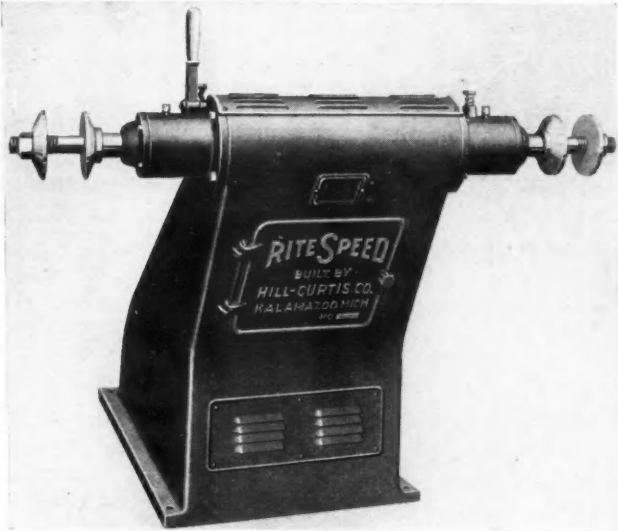
A NEW Rite Speed electric polishing and buffing lathe has been added to their line by the Hill-Curtis Co., Kalamazoo, Mich. The unit has, as a feature, a rigid one-piece base and spindle support having overhanging spindle design, and allowing maximum clearance around the spindle.

The motor is mounted on the inside of the pedestal



on T slot rails, forming a hinged bracket, and permitting belt tension adjustment from outside of the pedestal in the rear, without disturbing the motor mounting. Louvers are provided to insure circulation of air.

The new Hill-Curtis combination switch and brake



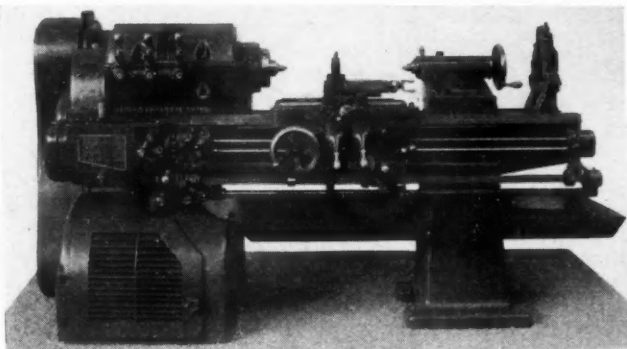
Hill-Curtis Rite Speed Lathe

is furnished on this model, insuring fool-proof operation and reducing wheel change time to a minimum. The machine is started by pushing the starting lever backward, thereby releasing the brake, and throwing the remote switch to the "on" position. The reverse of this action breaks the current circuit and applies the brake. Push button control is optional.

## Selective-Head Engine Lathe

A NEW 14-in. selective-head engine lathe for both production and toolroom use has been completed by the Lodge & Shipley Machine Tool Co., Cincinnati, Ohio. The swing is 16½ in. over the bed and 10½ in. over the ways, and the distance between centers with the tailstock flush on a 6-ft. bed is 33½ in.

Twelve changes of spindle speed are obtained through gears sliding on splined shafts. Only 12 gears are used for these speed changes, and all are hardened. Aside from the spindle, there are only two shafts in the head-



Lodge & Shipley 14-in. engine lathe

stock, and both of these run in ball bearings. All of the mechanism is carried in the lower part of the headstock, none of it being mounted on the cover. All gears revolve in oil, and a pump thoroughly drenches the whole interior of the headstock, including the spindle bearings, which are of white metal. The headstock is driven through a pulley having an improved type of disk clutch,

the latter being operated by levers at the apron and at the headstock end of the lathe. A reverse to the carriage, operated by a lever to the right of the apron, is a new feature that is expected to appeal particularly to the toolroom operator. It obviates the need for a reverse to the spindle, except when the relieving attachment is used on very special jobs.

The lead screw and feed rod can be thrown out of use by a clutch at the feed box end, so that only one of these members is operating at a time. Features that have been retained in the new design include the double-nosed spindle, the right-angled bearing of the carriage on the bed, the chilled ways of the bed, the special construction of the compound rest which eliminates top-slide overhang, the micrometer ball stop, and the double levers for apron friction.

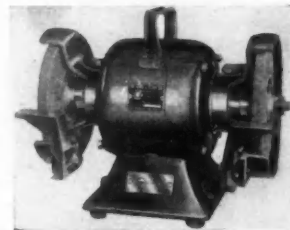
A convenient arrangement for mounting the motor and electrical equipment is provided by the design of the motor base, the motor being located at the rear, and a compartment with a door in front housing the starting equipment. Drive from the motor to the lathe pulley is by flat belt with automatic tightener.

## Portable Grinder

THE Black & Decker Mfg. Co. of Towson, Md., have brought out a new 6-in. ball bearing portable electric bench grinder selling for \$35.

It is a ball bearing grinder within the price range of the 6-in. and 8-in. sleeve bearing tools. The anti-friction bearings make it much easier to maintain wheel speeds under load.

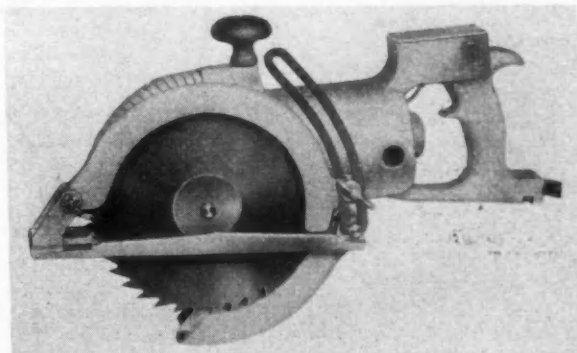
This grinder is for use on alternating current only, maintaining a 3600 r.p.m. spindle speed on 60-cycle current and 3000 r.p.m. on 50-cycle current.



Black & Decker portable grinder

## Portable Electric Hand-Saw

THE Wodack Electric Tool Corp., Chicago, recently placed on the market a light (15 lb.) one-hand electric saw, Model K, for cutting boards up to 2⅝ in. thickness. Features of the design include a saw dust blower for perfect vision, a convenient trigger switch, a rip gage to save marking of the board to be sawed, and a depth gage which can be easily adjusted by one wing nut. Accessories furnished with the saw include 15 ft. of extension cord, a 1 lb. can of Wodack lubricant, a grease gun, a steel carrying case, an adjustable depth gage and a rip gage.



Wodack hand-saw

First with  
the News

Reliable,  
Accurate

# News of the Industry

PAGE 494

VOLUME 61

Philadelphia, Saturday, October 5, 1929

NUMBER 14

## Last Quarter Production May Exceed 1928 Period

PHILADELPHIA, Oct. 3—As the automobile industry swings into the fourth quarter of the year, there are indications that production for passenger cars and trucks, considering the factories of the United States and Canada as a whole, will exceed that of the corresponding three months of last year (928,270) in spite of the record-breaking output of the nine months just passed.

While there is some doubt as to the likelihood of the total for October exceeding the 415,020 units produced during that month last year, it is predicted by well-informed quarters that production during November and December will surpass that of the corresponding two months in 1928 by a margin sufficient to raise the total for the final three months above that of the fourth quarter in 1928.

There is nothing to indicate that the recession shown by the factories in the month just closed was not thoroughly in keeping with the normal seasonal decline of activity in the industry. Sales executives continue to report the demand for new cars is going along favorably. The horizon of business in general, and in the automotive industry in particular, appears without dark clouds except for normal lowering in aspects peculiar to the season.

Those interested in the merchandising of cars, from factory officials to salesmen, review with extreme satisfaction the unprecedented demand for motor vehicles which has marked 1929 as a greater selling year. Efforts to clear up surplus stocks of new and used

(Continued on page 496)

### Discusses Sales Control

DETROIT, Oct. 3—Paul G. Hoffman, vice-president in charge of sales of the Studebaker Corp. of America, addressed the weekly luncheon of the Detroit Aircraft Club here last week. Mr. Hoffman touched upon that frequently mentioned topic, the "Mechanization of Distribution."

### C.I.T. to Finance Durant Sales

DETROIT, Oct. 3—Durant Motors, Inc., has entered into a contract with the Commercial Investment Trust Corp. for financing all time payment sales. A plan to liquidate the Durant Acceptance Corp. has been announced.

### N.S.P.A. Adds Space for Detroit Show

DETROIT, Oct. 2—With demands for exhibition space at the 5th annual N. S. P. A. Show becoming more pressing daily, R. Macfee, secretary, has added another 39 booths to the 311 already available, thus bringing the total to 350 to be occupied by about 225 exhibitors. The exposition opens at Convention Hall, Detroit, Monday, Nov. 11, and closes Saturday, Nov. 16.

### General Motors Will Use New Standard Price Tag

DETROIT, Oct. 3—General Motors Corp., through national advertising and through all its dealers, has announced that a new standard price tag, attached to the steering wheel of every General Motors car offered for sale, shows the list price of the automobile with a deduction for freight and delivery charges arriving at the "delivered price" from which a further deduction covering accessories and special equipment is made, thus giving the "total delivered price."

### Germans Urge Buying at Home

BERLIN, Sept. 30 (Special)—A "Community of Consumers of German Automobiles" has been organized under the presidency of the ex-Duke of Coburg, with the object of educating German citizens to accord preference to native and Austrian products. According to the "Community," an automobile is German if it is equipped with an engine of "domestic" manufacture.

## Production Session Hears Prof. Raymond

Economic Limits Discussed at  
Cleveland Gathering of  
S.A.E. and A.S.M.E.

CLEVELAND, Oct. 3—Formulas for determining the economic limits of production by lots and for learning when it would be profitable to substitute continuous for intermittent production, even though it would be necessary for a time for the manufacturing equipment to remain idle during certain periods, were presented here tonight by Prof. Fairfield E. Raymond, assistant professor of industrial research, department of economics, Massachusetts Institute of Technology, in a paper he read before the third session of the second machine tool congress. The session was the first of those on the program of the congress begun under the auspices of the production committee of the Society of Automotive Engineers.

Discussion of the paper, which was entitled "Manufacturing Control Through Economic Size of Production Lots," was lacking because, as was explained by several who were called upon for comments, those in attendance had not had the opportunity to study this apparently simple but nevertheless intricate presentation of the subject. E. P. Blanchard, chairman of the production committee, presided.

A production forum was to be held Thursday evening under the direction of the society. The congress was scheduled to close Friday evening with a joint production dinner sponsored by the Society of Automotive Engineers, the Machine Tool Congress, and the American Society of Mechanical Engineers.

Opening sessions of the congress on Monday and Tuesday evenings were held under the auspices of the machine shop practice division of the American Society of Mechanical Engineers. At the first of those sessions it was brought out in discussion that detailed information and not generalities is sought by prospective purchasers of machine tools regardless of whether the units are handled through salesmen representing the manufacturer or salesmen associated with an agent who deals in



a complete line of machine tools, together with a variety of labor-saving devices. The discussion followed the reading of a paper entitled "What Information Does the Machine Tool Buyer Need From the Machine Tool Salesmen." The paper was prepared by George T. Trundle, Jr., president of the Trundle Engineering Co., of Cleveland, and, because he was unable to be present, was read by C. O. Malpas, vice-president of the same company.

At the session Tuesday evening the possibility that the proper application of cemented tungsten carbide may result during the next three years in a revolutionary change in machine tools was expressed by Dr. Zay Jeffries, consulting engineer of the General Electric Co., Cleveland, and president of the American Society for Steel Treating. He spoke on "The Present Status of Cemented Tungsten Carbide Tools and Dies." "It seems to me," said Dr. Jeffries, "that we have gone far enough so that we can say definitely that cemented tungsten carbide is destined not only to have a definite place in the future of the industry but a most important place; that it will be used in large quantities and for a great variety of purposes in the future there can be no question, and when I say it at this stage, I mean cemented tungsten carbide, or its approximate equivalent, or what may be considered an improvement on existing material."

Dr. Jeffries pointed to evidences of the incipience of the predicted revolution seen at the second national machine tool show being held in the Cleveland Public Auditorium and Annex, simultaneously with the congress. Visitors there were impressed with the number of machine tools that have been redesigned to permit the optional use of cemented tungsten carbide. That has necessitated provisions for increased speeds, including the building of greater stiffness into parts to insure rigidity.

Among other features noted was the more widespread adoption of automatic lubrication oil filters and hydraulic feeds for machine tools. Machinery adaptable to the manufacturing of automobiles predominates at the show, which has 259 exhibitors as compared with the 180 listed at the first exposition, which was held in 1927.

#### Borg-Warner Earns \$5.20 a Share

CHICAGO, Oct. 2—Consolidated net earnings of the Borg-Warner Corp. for the first nine months of this year, available to the common stockholders of the company, will be close to \$6,400,000, C. S. Davis, president of the corporation, stated yesterday. These earnings, which include those of all of the units now comprising the Borg-Warner organization, are equal to around \$5.20 a share on the 1,230,852 shares of \$10 par common stock.

September earnings are estimated, as the figures for that month are not yet available. Earnings of the constituent companies for the eight months ended Aug. 31, 1929, were \$5,927,547 after all charges including Federal taxes.

### Largest Seaplane Liner Lands in Fog

NEW YORK, Oct. 1—Flying through intermittent rain, clouds and low, dense fog, William Grooch, chief pilot of the New York-Rio and Buenos Aires Line, brought the new Consolidated Commodore seaplane from Buffalo to Miller Field, Staten Island, yesterday afternoon. The craft is the largest American designed commercial seaplane.

### Seiberling Will Enter Storage Battery Field

NEW YORK, Oct. 3—It has been announced that the Seiberling Rubber Co., Akron, Ohio, will enter the automotive storage battery business and will handle a number of lines of batteries through its regular selling organization. One of the batteries to be handled is known as the Camel. It is described as a non-liquid automotive storage battery that requires water only once every 90 days. The plates are protected against shedding of active material by a semi-solid electrolyte and are said to be able to stand almost unlimited abuse. Owing to the physical state of the electrolyte, no acid spray can form and corrode terminals and ruin upholstery or clothing. This battery, which is manufactured by the Cooper Battery Co., is guaranteed for two years.

### N.S.P.A. Adds Members

DETROIT, Oct. 2—Twenty new members have just been added to the roster of the National Standard Parts Association by the approval of the membership and executive committees which met at headquarters in Detroit on Sept. 18 and 19. This addition gives the association a total membership of 416, 217 of whom are jobbers and 199 manufacturers.

Of the 20 new members, six are overseas jobbers, giving the association a total of 12 members carrying this classification. The new members are:

**Manufacturers:** American Bosch Magneto Corp., Springfield, Mass.; Cloyes Gear Works, Cleveland, Ohio; Continental Rubber Works, Erie, Pa.; Gates Rubber Co., Denver, Col.; Gould Storage Battery Co., Inc., New York, N. Y.; Huffman Mfg. Co., Dayton, Ohio; Mayo Co., Portsmouth, Ohio; P & D Mfg. Co., Long Island City, N. Y.; Roller Bearing Co. of America, Trenton, N. J.; U. S. Armature Corp., Chicago, Ill.; Westinghouse Lamp Co., New York, N. Y.; Wheel Parts & Mfg. Co., Chicago, Ill.

**Jobbers:** Motor Parts Station, Inc., Fort Worth, Tex.; Piperberg Auto Parts Co., York, Pa.

**Overseas Jobbers:** Auto Pieces S. A., Geneva, Switzerland; Anker Maschinen und Eisen-industrie A/G, Vienna, Austria; A. G. Healing, Ltd., Melbourne, Victoria, Australia; Hipsley's Ltd., Sydney, New South Wales, Australia; Replacement Parts Pty., Ltd., Melbourne, Victoria, Australia; Martin Wilson Brothers, Ltd., Brisbane, Queensland, Australia.

## Keller is Appointed Chrysler Manager

### Promotion of Mitchell and Foy Also Announced; Quarter Earnings are High

NEW YORK, Oct. 4—The selection of K. T. Keller as vice-president and general manager of the Chrysler Corp. and the return to active duty of W. Ledyard Mitchell in a new position as chairman of the board, Chrysler Export Corp., was announced yesterday by Walter P. Chrysler, following a meeting of the board of directors of the Chrysler Corp. Byron C. Foy was elected vice-president.

"The appointment of Mr. Keller to larger responsibilities is a well-earned promotion," said Mr. Chrysler in announcing the appointment. "Coming to the corporation in 1926, to take charge of production in the Chrysler plants, Mr. Keller has kept pace with the growth of the corporation. "When Chrysler Corp. acquired the Dodge Brothers properties they were put under Mr. Keller as general manager."

Directors of the Chrysler Corp. at yesterday's meeting declared the regular 75 cents dividend for the fourth quarter on the common stock, payable Jan. 2, 1930, to stockholders of record Dec. 2, 1929.

Commenting on the success of the Chrysler Corp. for the quarter ending Sept. 30, Mr. Chrysler said that the probable earnings for the corporation would be more than twice the amount necessary to cover the requirements for a cash dividend of 75 cents on the common stock. The corporation balance, as of Sept. 30, shows cash and securities on hand to the amount of \$57,452,142.

### Ford Output is 161,305; 2,000,000 Seen for Year

DETROIT, Oct. 5—Ford Motor Co. yesterday issued the following statement: "Production of passenger and commercial units during September, 1929, totaled 161,305 units, a heavy increase over production during the same month of the preceding year.

"An increased production schedule has been set for October, calling for an output of 175,000 Model A cars and Model AA trucks. The program for October anticipates a gain of 47,000 units over the production of 1928, when 127,225 units were produced.

"Ford production for the first nine months of the current year aggregated 1,633,498 units. Advance schedules indicate that production of Model A cars and Model AA trucks for the full year will exceed 2,000,000.

"The program adopted for October means that the Rouge plant will continue a full five-day week schedule. Employment in the Ford plants remains at a high level, with 108,138 employees working at the three large plants of the Detroit area on October 2."



## Sales Show Recession: Ford Boosts Low-Priced Totals

(Continued from page 494)

cars continue with vigor preliminary to the advent of cold weather.

Truck production decreased 14 per cent as compared with August of 1928, and 24½ per cent as compared with July of this year.

Following are the sales reports, prepared especially for *Automotive Industries* from important centers of the country:

### New York

Sales of automobiles in and around New York during September showed considerable decline from the earlier months of the year, and fell even lower than the same month last year by about 15 per cent.

Ford continues fairly active but Chevrolet and other cars in the lower price class have suffered somewhat by lack of buying interest during the month. With one or two marked exceptions, the reception accorded the new models brought out during the past two or three months has been rather cold. As a result dealers' stocks of new cars are accumulating rapidly, the warehouse facilities of one in particular being taxed to the utmost. Dealers are thus trading a little more broadly than they were earlier in the year, with the consequence that used car stocks are also becoming burdensome.

New car registrations in New York during the first two weeks of the month totaled 5251 as compared with 6165 for the corresponding two weeks of last year, according to Sherlock & Arnold.

### Boston

Motor car sales in the Boston territory for the first three quarters of 1929 show an approximate increase of 15 per cent as the general average. September started slowly, but picked up in the last two weeks.

At present dealers are not overstocked, seemingly intent on not becoming swamped with used cars before cold weather. Dealers in all price classes report a fair business partly due to continued clear, warm weather.

Ford dealers can make deliveries off the floor and they report sales good since the company began newspaper advertising. Chevrolet, Whippet and others in that field have been selling well.

Used cars slowed up but not enough to worry dealers. Outlook is good for last quarter.

### Chicago

Sales of new cars in the Chicago territory showed a slight increase in September over August, probably about 10 per cent. Used car sales increased approximately 25 per cent, thus cutting used car stocks to an increase of only about 10 per cent over last year.

New car stocks in dealers' hands are approximately 15 per cent greater than for the same period a year ago.

Introduction of new models this year, however, has presented no serious problems to the dealers as has so often been the case in the past. Ford sales are about 45 per cent of the unit volume. Chevrolet is second, with about 35 per cent.

### Detroit

The monthly review of sales of new cars showed deliveries were running slightly below the level of last year, as the third quarter drew to a close, and it is doubtful that final figures for September will equal those of September, last year, when deal-

ers here disposed of 7908 automobiles.

Sales during the first eight months of the year totaled 97,229, exceeding the total for the corresponding period last year (60,306) by 37,023, or more than 50 per cent. Each of the first eight months of this year surpassed the corresponding month last year. It is to this remarkable record that local dealers attribute in a large measure the present apparent tendency downward.

Ford continued to get about one-third of the total business, outselling his next ranking competitor by approximately three to one. Used car stocks are still the dealer's big problem, and strenuous efforts in the way of price reductions and advertising are being made to lower such inventories before the advent of cold weather.

### Milwaukee

While passenger car sales in September again showed the consistent increase over last year that each month this year has made, it is only the record of Ford that has made this possible. Chevrolet is somewhat below last year. In the medium-priced group, only a few makes have actually improved their position over 1928, although the losses of the others have been relatively small.

In the high-priced group, practically no make is ahead of last year for the first three quarters of the year. In a general way, new car stocks in dealers' hands are heavy, but in no case is complaint heard. Used car stocks are increasing despite the measures being taken to promote disposal.

The Milwaukee Ford assembly plant, after operating on a 6-day week since February, has returned to the 5-day week, with a reduction of 20 per cent in the force, but is adhering to normal capacity schedules at 150 a day through October.

Dealers regard prospects for October business as favorable, despite the recent slackening of the sales pace. There is no lack of enthusiasm, although selling requires more strenuous efforts than have been necessary for many months past.

### Minneapolis

Automobile sales in this district for the first three quarters of 1929 on the average were larger than for the period of 1928. The relation of new car sales and stocks is unchanged. Some distributing houses are short on models and none reports stocking ahead.

While for some time the high and low price cars have had the run of the market, as usual at this time of the year the character of machines ordered begins to swing to the medium type automobile. Weather conditions have been good for the motor car trade in the northwest.

The Ford sales continue to indicate pressure in this make. In Hennepin County, the largest in the state, September showed 451 Ford deliveries, compared with 158 for the Chevrolet and 85 for the Buick.

Used car conditions are good, sales in the last two months not hinging so much on trade-ins.

### Cincinnati

New car sales showed a decided slump in September, registrations for the first 24 days being 26 per cent under the same period in August. Used cars, however, moved steadily, sales for the first 24 days totaling 4110, approximately 2 per cent under August. Dealers are unable to account for the slump. New car stocks are approximately 35 per cent over August, and both new and used car stocks are in excess of last September.

Of the 1384 registrations in September low priced cars accounted for 80 per cent, medium priced 19 per cent, and high priced 1 per cent.

Ford again led the field with a ratio of 180 per cent over Chevrolet, and approximately 462 per cent over Essex.

Weather has been good, and business generally prosperous. The local Ford assembly plant is turning out about 150 cars a day, and none of the Ford dealers have any new car inventories on hand, demand taking care of them as fast as they can be turned out.

### Atlanta

Exceptionally bad weather in the Southeast adversely affected automobile trade the last part of September, though the month as a whole was better than the same month last year by a small margin.

For the first three quarters of 1929 sales were considerably larger than the first three quarters of 1928, Ford and Chevrolet showing an unusually large gain, medium priced cars of the Buick, Dodge Bros. and Studebaker class a fairly good gain and higher priced cars a slight gain.

All dealers and distributors seem unusually confident over the fall outlook in the Southeast because of the large crop yields and a resultant increase in the purchasing power of southeastern farmers.

Sales in October, November and December are expected to be well in excess of the same three months in 1928. Dealers have an ample supply of new cars in stock but expect to be able to keep new stock moving well the coming month.

Used car stocks continue exceptionally heavy with sales being made by most dealers at sacrifice prices.

### Denver

With the exception of five days early in the month September gave this territory ideal weather, and business has showed a corresponding increase in car sales. Fords have settled down to 51 per cent of total sales, with Chevrolets next with about one in three Fords, and Essex third with one in six Ford sales.

Ford dealers report that they are just about able to get the cars they can sell, and are not being crowded in any way. They report used stocks the lowest this year, but all other dealers report these stocks above normal.

The most sales, of course, are in lowest priced cars, with better mediums next, and high priced cars lowest. Most medium priced car dealers report a better month last year, but Nash reports a poor two months, due to announcement of new models, and then a dearth of the new cars when they came.

Business should be good the last quarter, although farm conditions are far from being at their best, and the usually heavy business from the Horn district, in north central Colorado, probably will be light this fall. Good weather is usual here in October, and all dealers are optimistic.

### Seattle

New car sales in the Seattle territory during September showed a 5 per cent increase over sales for August, and were slightly better than for September, 1928. The first three quarters of 1929 register a 5 per cent gain over sales for the same period of 1928.

At the present time dealers are not overstocked, with sales keeping pace with cars on hand, contrary to last year when stocks were heavy in proportion to sales. Low

priced group continues to dominate sales in this territory, with Ford outselling Chevrolet by 15 per cent. Ford dealers pretty well stocked, but not being forced.

Used car market is in fairly good condition, with stocks approximately 20 per cent under those for last year at this time, although prices are lower. Dealers anticipate normal business for October.

#### Oakland

Northern California sales for September were about 15 per cent less than those of the previous month, and about 20 per cent increase over September, 1928. Ford and Chevrolet sales nearly were half of the combined sales of all others. Ford sales were more than twice those of Chevrolet. Buick sales were about half of those of Chevrolet.

Hudson, Essex and Nash are cleaning up old models, with reduced prices, in anticipation of forthcoming new models. The increase in their business is cutting into business of other manufacturers. Sales in high, medium and low-priced cars were approximately 10, 30 and 60 per cent of total, respectively. Sales for the first three quarters of this year were 25 to 30 per cent greater than the same period last year. Outlook for the last quarter is good but not equal to the first three quarters. Ford stocks slightly easier than last month, but dealers are not being forced.

#### Los Angeles

Southern California new car registration reveals phenomenal increase for the first eight months of the year. New car sales for the year to the end of August totaled 110,387 as against 63,812 for the same period in 1928. Dealers are optimistic for October business.

Deliveries in cars selling under \$1,000 in Southern California showed an increase of 3336, deliveries for August being 9146 against 5810 recorded for the same month last year. Sales in \$1,000 to \$2,100 price class were 5873, an increase of 691 over August, 1928.

Sales above \$2,100 were 717, or 389 less than August, 1928, figures. Ford has been outselling Chevrolet, second on the list, better than two to one.

#### Kansas City

Automobile sales in Kansas City and territory in September were slightly under a year ago, but 10 per cent better than August of this year. Dealer stocks are about normal. Light cars constitute the greater percentage of sales, with Ford and Chevrolet in a battle for leadership.

Ford dealers have only normal stocks on hand and report ready sales, but the assembly plant here is now working on an erratic basis, which might indicate that this condition is not general in the territory.

Used cars have become a heavy drag in most instances, dealers being unable to move them fast enough to keep up with the new car sales.

Agricultural conditions peculiar to the Kansas City territory have, dealers believe, slowed sales in September, but they are predicting a big October business.

#### Cleveland

Dealers in this territory report 3574 new car sales for September. This figure, while showing effects of the annual fall slump, is about 800 ahead of the mark for the corresponding month in 1928. Business in used cars totaled 11,436 for the month, compared with 10,709 for September, 1928.

Ford continues to lead Chevrolet in sales. They are followed closely by Buick and Essex. Stocks are moderately large, but brisk advertising drives have enabled those dealers expecting new models to clear their floors successfully.

### Develops Lighter Crude Oil Engine

STOCKHOLM, Oct. 2—A new light type of crude oil engine has been developed by Jonas Hesselman, a Stockholm civil engineer.

The invention is considered most important, as it will make possible the use of crude oil for fuel in airplanes and automobiles. An Anglo-Swedish company with large financial resources has been organized to exploit the new engine.

### Draw N.A.C.C. Show Space; Tribute is Paid to White

NEW YORK, Oct. 4—Drawing space for the showing of 240 models of automobiles by members of the National Automobile Chamber of Commerce started preparations for the 30th Annual Automobile Show in New York and Chicago, at a luncheon which followed the regular quarterly membership meeting of the chamber. Forty-six manufacturers of cars were represented, including 42 manufacturers of domestic cars, two makers of domestic taxicabs and several foreign manufacturers.

At the meeting of members, which preceded the drawing, high tribute was paid to the memory of Walter C. White, former president of the White Motor Co. and for many years a member of the board of directors of the N.A.C.C.

### Logangear Buys Business of Indianapolis Tool Co.

TOLEDO, Oct. 3—The Logangear Products Co., of which C. O. Miniger is chairman of the board, has announced the purchase of the ring gear and pinion business of the Indianapolis Tool & Manufacturing Co. of Indianapolis, and the machinery, equipment, tools and patterns will be moved to the Logangear plant here immediately.

A few weeks ago the Logangear company took over control of the Bingham Stamping & Tool Co., and it is rapidly building into one of the large automotive accessory concerns of the city.

The deal was consummated by J. B. Nordholt, president, and George D. Welles of the law firm of Tracy, Chapman & Welles.

The Logangear concern is now making flywheel ring gears as original equipment for 60 makes of motor cars and trucks, and the "I.T.M." ring gear and pinions have been known in the trade internationally for many years. Both companies enjoy a large replacement parts trade.

### Toledo Employment Drops

TOLEDO, Oct. 3—Employment in Toledo automotive plants took a drop of about 1500 workers during the past week, largely due to inventory at the Willys-Overland plant here. A year ago there were more than 35,000 at work at this time in the same 51 plants.

## Marmon Will Bring Out Straight-Eight

New Model to be Priced at  
About \$2,600, f.o.b., Says  
President Williams

INDIANAPOLIS, Oct. 3—The Marmon Motor Car Co. is completing final arrangements to introduce this fall an entirely new car to be known as the Marmon Big Eight, it was officially announced today by G. M. Williams, Marmon president. This car will be a straight-eight of the most advanced type and will have a factory base price of approximately \$2,600 for the five-passenger sedan, Mr. Williams said. It will be produced in a full line of body styles, and will be available for public showing shortly after Nov. 1.

In announcing this car, Mr. Williams said: "The new Marmon Big Eight will not replace any of our present lines, but will be a final addition to our program of offering a complete line of straight-eights, beginning with the Roosevelt in the \$1,000 field.

"The new Big Eight will serve to re-establish Marmon in the field in which it has been noted in the past, and in which it has a large clientele of owners. It will have such advanced features as a 125 hp. engine and four-speed transmission, in addition to incorporating numerous innovations in appearance, luxury, comfort and performance.

"We have already laid extensive plans for marketing this car through our distributor and dealer organization which has been more than doubled this year and which, at present, is approximately five times the size of our organization at the time we produced large cars exclusively."

### New Pines Winterfront Plant is in Operation

CHICAGO, Oct. 1—Operations in the new plant of the Pines Winterfront Co. are speeding up with the installation of additional manufacturing equipment. The company has placed 15 carloads of new machinery in operation. The moving of machinery from the old plant on North Sacramento Blvd. is now in progress, but will not be completed until after Jan. 1.

Delivery schedules to take care of orders on hand will not permit the shutting down of the old plant long enough to move the remaining equipment as a whole. Under the present plan of moving, the break in production on each machine is reduced to a matter of hours, and in some instances, minutes.

### Nicaragua Names U. S. Officer

WASHINGTON, Sept. 26—Commander Ralph Warfield, U. S. N., has been appointed by President Moncada of Nicaragua to take charge of the road construction program in the vicinity of Ocotal, it was reported to the Department of Commerce this week.



# Men of the Industry and What They Are Doing

## LaFarge Resigns Posts In General Motor Group

Alfred P. Sloan, Jr., president of General Motors Corp., announces the resignation of O. H. P. LaFarge as assistant to vice-president and assistant secretary of General Motors as well as director of General Motors Acceptance Corp. and General Exchange Insurance Corp. Mr. LaFarge is retiring to take care of his own affairs and to interest himself in other financial undertakings.

## Barry Now With Durant

M. L. Barry, formerly sales manager for General Motors in Berlin, has sailed for Paris to take up his new work as foreign representative for Durant Motors, Inc., In Paris Barry will attend the Auto Salon and also meet with European Durant distributors following the Paris show. Thence he will go to London to visit the Olympia Automobile Exposition. Following a tour of Spain, Italy, Greece, Turkey, Egypt, Morocco, Palestine, Austria, Hungary, Bulgaria, and Germany, Barry will take up his headquarters in Vienna, from which point he will direct Durant operations in central and southern Europe.

## Sorenson Returns

C. E. Sorenson, general manager of the Ford Motor Co., returned from a trip to Europe. While abroad Mr. Sorenson spent some time in Russia consulting with Soviet officials on the new plant being erected under Ford direction at Nizhni Novgorod. This new plant is to have a capacity, when completed, of 100,000 vehicles per year, all of the Ford type. About 60 per cent of these vehicles will be trucks.

## Greenwalt Leaves for Europe

W. H. Greenwalt, vice-president and general manager of the Murray Wood Products Co. of Memphis, sailed for Europe Oct. 1. He will visit the Paris and London Salons. The company is a division of the Murray Corp. of America, manufacturers of wood body parts.

## Wellenkamp With Wright

Paul G. Wellenkamp, formerly shop superintendent with the Fairchild Engine Corp. of Farmingdale, L. I., is now with the Wright Aeronautical Corp. of Paterson, N. J., as assistant production engineer. He will have charge of tooling, working under I. J. Snador, production engineer.

## Clark With Cadillac

C. C. Clark, San Francisco, for five years a district automobile manager on the Pacific Coast and in New York, has been appointed by the Cadillac Motor Co. as regional manager for the western section.



## G. A. Richards

*formerly head of the Richards-Oakland Co., distributor of Oakland and Pontiac cars, which was recently taken over as a factory branch, has been appointed vice-president of the Automobile Radio Corp. He will have direct charge of manufacturers' sales of the "Transitone" automobile radio*

## Grant Returns From Europe

R. H. Grant, vice-president of General Motors Corp., returned from a three weeks' vacation trip in Europe.

## Ledwinka is in Europe

Joseph Ledwinka, chief engineer of the Edward G. Budd Mfg. Co. of Philadelphia and Detroit, is visiting automobile shows in Paris and London.

## Hall is in Europe

V. C. Hall, export manager of Duesenberg, Inc., is in Europe attending the Paris, London and Prague automobile shows. There will be exhibits at each of these three shows, of the Duesenberg chassis, upon which will be mounted examples of coach work by leading American and European body builders. Duesenberg, Inc., is exporting about 12 per cent of its production.

## Carlson to Represent White

C. O. Carlson, of the export department of the White Motor Co., will leave Cleveland soon for Central America where he will take up a new assignment as resident district manager.

## Barsky is Works Manager

Maurice Barsky, former shop superintendent, has been promoted as works manager of the Herman Z. Cutler Co., Inc., Bridgeton, N. J.

## Barlow Heads Moto Meter And Subsidiaries Sales

A. E. "Bill" Barlow, formerly sales manager of The Moto Meter Co., Inc., has been appointed general sales manager of the new Moto Meter Gauge & Equipment Corp., with headquarters at Long Island City, N. Y. Under the new combination, Mr. Barlow, who has been for many years a familiar figure in automotive circles, will supervise sales of the Moto Meter Co., Inc., Nagel Electric Co., National Gauge & Equipment Co., Safe-T-Stat Co. and the Moto Meter Co. of Canada, Ltd., divisions of the Moto Meter Gauge & Equipment Corp.

## Herb Hyman Promoted

Herb Hyman has been appointed director of advertising for Advertisers, Inc., Detroit. He will have charge of the work of the copy, contact, art, production, control, creative and publicity departments. The firm handles accounts of all divisions of Chrysler Motors. Mr. Hyman was appointed director of promotion by the Bobbs-Merrill Publishing Co. of Indianapolis, Ind. Entering the automotive field in 1914 as director of publicity for the Cole Motor Car Co., he was advanced to the position of advertising manager and later became director of merchandising.

## Murphy Heads Sales Promotion

Pat Murphy, formerly general traffic manager of the Trans-Continental Air Transport Corp., has been appointed director of sales promotion for the Detroit Aircraft Corp., Edward S. Evans, president, has announced.

## Hardin Joins Aviation Corp.

Tom Hardin, World War aviator, has been appointed director of operations for the Aviation Corp. He will direct the activity of more than 10,000 miles of American airways controlled by this corporation. He comes to this appointment from a position of vice-president and general manager of Southern Air Transport, one of the subsidiaries of the New York holding company.

## Mooney Named by Duesenberg

Charles P. Mooney has been appointed special representative for Duesenberg cars, with headquarters at Philadelphia. Mr. Mooney has had many years of experience in the representation of the finer makes of cars.

## Avery Attending Exhibitions

C. W. Avery, president of the Murray Corp. of America, accompanied by Mrs. Avery and their daughter Anabel, have sailed for Europe. Mr. Avery is going over primarily to attend the Paris and London automobile shows, and will tour in Germany, Switzerland, England, and France.



## Production and Shipments in September

Total production figures for automobiles and trucks in the United States and Canada for September, as reported by the National Automobile Chamber of Commerce, was 417,035, as compared with August, which was 513,743, a decrease of 96,708. Production for the first nine months of this year was 4,828,720, as compared with 3,728,907 for the same period last year, an increase of 1,099,713.

Willys - Overland September production was about 18,000 cars, which was slightly above the same month last year. The outlook for October is about the same volume.

Franklin Automobile Co. reports that September shipments totaled 1050 units, exceeding all previous September records and making the ninth consecutive month this year when best previous corresponding month's shipping figure in the history of the company has been surpassed. The shipping average for the year was 107 per cent ahead of last year's average.

Hudson Motor Car Co. has produced and sold more cars in the first nine months of this year than in the entire year of 1928. Production of Hudson and Essex cars and Dover trucks for the nine months ending Sept. 30 totaled 284,382 units as compared with 282,207 in all of 1928. This nine months' total exceeds the company's largest previous annual production, so that all cars manufactured from Oct. 1 to Jan. 1 will add to a record-breaking year, already established.

Packard Motor Car Co. reports shipments for the first nine months of this year as 37,975 cars as compared with 35,033 cars in the corresponding period last year. Production in the first nine months of this year was 37,779 cars, against 33,596 last year.

Gardner production for September was

250 cars, about the same as last month's total. A similar schedule for October is planned.

Chevrolet Motor Co. announces its September production as 96,590 cars and trucks. While this figure falls somewhat below that of September, 1928, when production was 105,615 units, the schedule for October calls for an output of more than 80,000 cars and trucks, compared with the production of 65,052 units for October, 1928.

Hupp Motor Car Corp. reports production last month as 8584 cars. The company reported its production in August as 5055 and for July, 2096.

Olds Motor Works reports that during the first nine months of this year 95,843 automobiles were shipped from its Oldsmobile-Viking factories. This is an increase of more than 25 per cent over shipments during the same period last year.

Reo Motor Car Co. shipped 2850 cars and speed wagons last month, according to C. E. Eldridge, general sales manager. Production has been kept closely in line with retail sales with the result that dealers' stocks are unusually low, according to Mr. Eldridge. October schedule calls for 4000 passenger cars and speed wagons.

Graham-Paige reported that September production totaled 5762 cars, bringing the total for the first nine months to 71,682, or 6002 cars more than were produced during the same period last year.

Auburn broke all previous records with its biggest shipments, doubling those of any previous September, according to N. E. McDarby, director of sales. Total shipments were 1867, of which 644 were Cord front-wheel drive cars. Production schedules for October call for 1100 Auburns and 1200 Cord cars. The present rate of production for Cords is 40 a day, and 50 a day will be reached by the end of the week, it was expected.

provide for future expansion as necessary. The new building, which is expected to be ready for occupancy about Nov. 1, will house a completely equipped chemical laboratory and a mechanical laboratory in which research work will be under the direction of R. D. Hall, chemical engineer, who recently joined the company.

### Detroit Banks May Merge

DETROIT, Oct. 3—Directors of five Detroit banks have recommended to their stockholders a merger which will result in an institution with total resources of \$725,000,000. The financial institutions in the transaction, which will involve about 60 per cent of the banking resources of Detroit, are the Peoples Wayne County Bank, the First National Bank, the Bank of Michigan, the Peninsula State Bank and the Detroit and Security Trust Co.

### Central Alloy to Spend \$600,000

MASSILLON, OHIO, Oct. 3—The Central Alloy Steel Corp. has authorized an expenditure of more than \$600,000 for important improvements at both the Massillon and Canton plants, it is announced by Chairman F. J. Griffiths.

## Predicted Slump Hits Steel Mills

### Automotive Changes Affect Producers of Strip and Sheets

NEW YORK, Oct. 4—Neutral tints are seldom used in painting the steel market's picture. The sky is either roseate or dismal black, and just now there is a tendency to make the picture look much darker than it really is.

Conditions are impressively orderly by contrast with those which prevailed in former years, when ever so often a turn in business would bring wholesale cancellations and postponements.

That the demand was bound to slow down was foreseen long ago, and mills have been prepared for some time for the task of adjusting their operating rate to the shrinkage in buying.

Changes in models by motor car manufacturers always involve a period of transition which affects steel mills as much as parts makers.

One of the leading manufacturers of low-priced passenger cars has ordered completion of old contracts by shipment not later than next Monday.

Aluminum—Inquiries for aluminum for delivery over the remainder of the year are on the increase, and a fair amount of business is reported to have been placed. The market for both virgin and secondary metal is unchanged.

Copper—Domestic consuming as well as export demand is relatively light. The market holds steady at unchanged price levels. Routine conditions prevail in automotive brasses and other copper and brass products.

Tin—The market continues dull and easy, devoid of special features.

Lead—Fairly good demand from storage battery manufacturers is noted. The market remains quothably unchanged.

### Hanna Merger is Ratified

DETROIT, Oct. 3—Stockholders of the M. A. Hanna Co. of Cleveland have ratified coalition of the company's subsidiaries with the Great Lakes Steel Corp. of Detroit and the Weirton Steel Co. of Weirton, W. Va., making effective the agreement of the three companies for the formation of the National Steel Corp. as a holding company. The new company, with a Delaware charter, will have an authorized capital of \$3,000,000 no par value shares of which \$2,080,000 will be issued to effect the merger.

### Stinson Sale to Cord Proposed

DETROIT, Oct. 3—The directors of the Stinson Aircraft Corp. have approved a proposal for the purchase of Stinson by the Cord Corp., according to an announcement today by William A. Mara, secretary of Stinson. Under the proposal, which is to be acted upon by stockholders at a meeting to be held in the latter part of this month, Cord offers to purchase Stinson stock at \$17 a share, provided 60 per cent of the stock can be obtained.

## Safety Education Pays, Industrial Heads Say

CHICAGO, Oct. 5—That safety education pays the American industry in actual dollars and cents was the decision reached here when the 354 speakers at the 125 sessions of the National Safety Council ended the 18th annual Safety Congress last night.

Charles M. Mills, assistant to the president of the Standard Oil Co. of Ohio, brought this point forcibly to the attention of the congress when he cited instance after instance of a statistical nature showing actual savings through accident prevention. One of the most outstanding of these cases was that of a petroleum company which, over a five-year period, had saved \$70,000 annually.

### Durametallic is Building

DETROIT, Oct. 3—The Durametallic Corp., of Kalamazoo, Mich., whose products include packing, gaskets, babbits, solders, is erecting a new building which will contain 8000 sq. ft. of floor space, all on one floor, and which will provide more than twice the floor space now occupied by the company. The lot on which the addition is being built contains 23,000 sq. ft. which will

## U.S. Group is Host to World Engineers

Delegates to Tokio Congress  
Are Entertained on Eve  
of Departure

NEW YORK, Oct. 2—The American committee of the World Engineering Congress, to be held in Tokio Oct. 29 to Nov. 22, held a dinner recently for their delegates and European delegates who stopped in this country en route to this congress. Italian, German, English and Belgian delegates were guests of honor at the dinner and Senator Luigi Luiggi of Rome was the chief speaker.

Other than Senator Luiggi and Dr. Gill, the foreign delegates present at the dinner were: Prof. Francesco Mauro, vice-president of the Technical Institute, Milan; Prof. Luigi Lombardi and Prof. Giulio Annoni, both of the Royal School of Engineers, Milan; Giuseppe Tronconi, chief engineer of the Italian Railways; Ernesto Lavalle, Guido Corbellini, Annibale Palluchini, Domenico Romano, Amilcare Robbiani.

Fay H. Rosencrans of London; Graf Vitzthum of the Association of Electrical Engineers, Berlin; Ranslav M. Aranovitch, president of the general council, Engineers and Architects Association of Yugoslavia; Prof. Bergrat Tuebben, Technical University, Berlin; Dr. Fournier, representing the Belgian government, Charles Gorissen, Hans Kralik and Max E. Hasche, all of Berlin, and Emil Hayn, Bresgau, Germany.

American delegates who attended the engineers' dinner were: Dr. and Mrs. Frank B. Jewett, Dr. Elmer A. Sperry, Ole Singstad, Bancroft Gherardi, William Elmer, Mr. and Mrs. Robert Ridgway, Mr. and Mrs. Roy V. Wright, Mr. and Mrs. George T. Seabury, Mr. and Mrs. Calvin W. Rice, Mr. and Mrs. F. L. Hutchinson, Dr. and Mrs. H. Foster Bain, Col. and Mrs. E. A. Simmons, F. M. Delano, Mr. and Mrs. W. H. Boehm, Mr. and Mrs. Otis E. Hovey, Mr. and Mrs. Henry D. Hibbard, Mr. and Mrs. Alfred D. Flinn, Mr. and Mrs. E. L. Jorgensen, Ralph M. Roosevelt, Maurice Holland, E. P. Goodrich, Mr. and Mrs. Carroll H. Wegemann, Mrs. Lillian M. Gilbreth, C. Herbert Baxley, L. M. Healy, Gano Dunn and Mr. and Mrs. J. B. Bassett.

### Timken Sells Ford Axles

DETROIT, Oct. 3—The Timken Detroit Axle Co. has obtained an order from the Ford Motor Co. for 40,000 rear axles for Ford trucks, delivery to begin about Dec. 1 at the rate of 500 daily. This is equivalent to more than three months' business. Timken has been supplying all front and rear axles for trucks made by Ford of Canada.

### Dodge Sets Export Record

DETROIT, Oct. 3—Shattering an all-time record in the history of the com-

pany, Dodge Brothers export shipments of trucks and commercial cars from plants in the United States and Canada totaled 8163 units for the first eight months of this year, an increase of more than 11 per cent over the corresponding period last year.

## General Tire is Working on Landing Shock Device

AKRON, Oct. 2—Shock-absorbing devices, designed to lessen the fatalities resulting from forced airplane landings, are being made by the experimental department of the General Tire & Rubber Co. of Akron, according to William F. O'Neil, president.

Among the devices are improved rubber shock absorbers for landing gears, rubber insulators for joints that bear the brunt of shocks in collisions or rough landings, rubber shields for wing tips and for the joints that connect the wings to the fuselage, and rubber motor mountings designed to minimize vibration in the airplane when in flight.

## Car Monopoly is Opposed

MADRID, Oct. 3—Opposition to the project of a government automobile monopoly has developed in the Spanish press. El Sol and other papers today attack the plan as illogical and prejudicial to Spain's own commercial interests. Spain for years will not be in a position to manufacture automobiles of different kinds, which would only mean competing with foreign makes, it is contended. The view is expressed that if, conceding the monopoly, it produced only one make of Spanish car and competition was suppressed, a diminution in sales would result.

### Dr. Hague at Brooklyn

BROOKLYN, N. Y., Oct. 2—Dr. Bernard Hague, principal lecturer in electrical engineering at the University of Glasgow, will be visiting professor of electrical engineering at the Polytechnic Institute of Brooklyn, for the present academic year. Dr. Hague is the holder of the Siemens medal for electrical engineering and the Henrici medal for mathematics.

### American Chain Moves

BRIDGEPORT, CONN., Oct. 2—The removal of the Chicago offices of the American Chain Company, Inc., and Associate Companies on Sept. 28, to new quarters in Chicago Daily News Building, has been announced. The associate companies affected include Ford Chain Block Co., Highland Iron and Steel Co., Manley Mfg. Co., Page Steel and Wire Co., Reading Steel Castings Co., and Wright Mfg. Co.

### To Arrange for Austin Car

NEW YORK, Oct. 2—Roy M. Norr, representing the American Austin Car Co., Butler, Pa., will confer with Sir Herbert Austin in London in regard to final details for the introduction of the baby Austin car in the United States.

## Business in Brief

Written by the Guaranty Trust  
Co., New York, exclusively for  
AUTOMOTIVE INDUSTRIES.

NEW YORK, Oct. 3—Fall trade is increasing, with the wholesale and jobbing lines in the lead; for the relatively high temperatures last week have retarded the retail movement of fall goods. Building is less active, and trade in iron and steel has fallen off.

### RETAIL SALES

Department store sales in the Federal Reserve district of New York during August were 4 per cent above those a year ago, while the average daily sales of department stores in New York City alone during August were 9 per cent above those in the corresponding month last year.

Sales of store chains in the Federal Reserve district of New York during August were 16 per cent above those in the corresponding month last year.

### CAR LOADINGS

Railway freight loadings for the week ended Sept. 14 totaled 1,153,062 cars, which marks an increase of 15,002 cars over those in the corresponding week last year and an increase of 25,419 cars over those in the corresponding week two years ago.

### FISHER'S INDEX

Professor Fisher's index of wholesale commodity prices for the week ended Sept. 28 stood at 95.8, as against 96.1 a week earlier, and was the lowest since the index for the week ended June 8.

### BANK DEBITS

Bank debits to individual accounts outside of New York City for the week ended Sept. 25 were 17 per cent above those for the corresponding week last year.

### STOCK MARKET

The stock market last week was weak and depressed. The stiffening in the call money rate, which ranged from 8 to 10 per cent during the week, the rise in the discount rate of the Bank of England, and the increase in brokers' loans were the fundamental causes of the decline. At times only strong support saved the market from even greater weakness; and, while there were some rather strong rallies, all but a few issues closed the week with net losses.

### FEDERAL RESERVE STATEMENT

The consolidated statement of the Federal Reserve banks for the week ended Sept. 25 showed increases of \$10,500,000 in holdings of discounted bills and of \$22,800,000 in holdings of bills bought in the open market, while there were decreases of \$25,600,000 in holdings of Government securities and of \$16,900,000 in member bank reserve deposits. The reserve ratio on Sept. 25 was 73.8 per cent, as against 73.8 per cent the week before and 73.7 per cent two weeks before.



## **Chevrolet Sets Record with 1,200,000 Sixes on the Road Since First of Year**

DETROIT, Oct. 3—The Chevrolet Motor Co. announced that more than 1,200,000 of the new six-cylinder Chevrolet cars have been placed on the road since the first of the year. This achievement, accomplished in little over nine months, is three times the best showing of any other manufacturer of six-cylinder cars in a calendar year and tops Chevrolet's record total for the entire year of 1928.

It is now certain that six-cylinder production will set a world record this year, surpassing for the first time in the history of the industry the output of four-cylinder cars. This leadership of the sixes will come about chiefly because of Chevrolet's record showing.

Chevrolet factory officials declare that the dominating reason back of the leadership of the six is the public preference for the advantages which this

type of construction affords. They point out too that the influence of great volume production, which has enabled the industry to get six-cylinder prices down to the lowest on record, has made it possible for Chevrolet through maximum volume to offer six-cylinder performance at a price that formerly bought only a four.

With a new yearly record already assured, Chevrolet factories are continuing on the biggest fall production program ever undertaken by the company. Nine assembly plants and seven large manufacturing plants are facing the busiest final quarter that Chevrolet has ever known.

The heavy fall factory program was made necessary, it was explained, to bring production up to the level of the demand and make possible quicker deliveries to owners.

totals 1,144,000 shares, representing a split-up of four-for-one which became effective on September 20. The company has declared regular quarterly dividend of 50 cents on new common payable November 16 to stockholders of record October 24. This places the stock on \$2 annual basis, equivalent to \$8 annually on old stock, recently split up on a four-for-one basis. The old stock paid \$7 annually.

### **Durant Rushing Addition for California Project**

OAKLAND, CALIF., Oct. 2—The latest addition to the plant of the Durant Motor Co. of California, in this city, which is being rushed to completion, is expected to be ready for occupancy by October 15. This unit, which is to cost \$50,000, will be the third added by the Western Durant organization since January 1 and will bring the company's investments in new buildings this year to \$250,000.

The building, which is one-story in height, will provide more than 20,000 sq. ft. of floor space. It will be used to handle and distribute parts. J. H. Conway, manager of the parts and service division, has perfected an arrangement of the bins and their contents whereby any part can be located by reference to an index and chart. All modern devices and equipment for handling the parts will be installed.

### **Packard Executives Sail**

NEW YORK, Oct. 2—H. W. Peters, vice-president in charge of distribution of the Packard Motor Car Co., and B. C. Budd, general manager of Packard Motors Export Corp., have sailed for a two-months' trip, visiting Packard retail organizations in Europe. They were accompanied by A. Moorhouse, chief engineer, and A. L. Knapp, Packard body engineer. Mr. Peters and Mr. Budd will visit Packard distributors in Europe.

## **AC Will Expand Plant Facilities**

### **New Electrical Gasoline Gage Will be Made in New Factory**

DETROIT, Oct. 3—An expansion program calling for an addition of 42,000 sq. ft. of floor space, to provide for increased manufacturing activities, is announced by Harlow H. Curtice, vice-president and assistant general manager of the AC Spark Plug Co., Flint.

The program embraces a new three-story building, 100 x 160 ft., which will be occupied by various AC divisions, including the engineering staffs, experimental, development and testing department and laboratories.

The space made vacant by removal to the new building of these and other departments will be utilized in manufacturing an electric gasoline gage, a new AC product just introduced.

This new product, Mr. Curtice says, was brought out after extensive development and will be used by one of the largest car producers in the industry within a few months.

Work on the new building will start immediately and will be completed early this winter. In addition to releasing more floor space for manufacturing, it will make possible the placing under one roof of all AC engineering, experimental and new development activities.

Mr. Curtice declared that the new gasoline gage would provide additional employment, which would of course be controlled by business conditions in the automotive industry. At present these conditions are favorable, he said, and good for the remainder of the year.

### **Chinese Building Roads**

WASHINGTON, Oct. 3—Roadbuilding plans in China are beginning to take concrete form, according to a report received this week by the Department of Commerce from Commercial Attache Julian Arnold, at Peking. A recent conference of highway officials, held at Nanking upon the call of the Nationalist Government, discussed plans for a national program including a system of 11 national arteries.

Central government funds, however, are low and this will materially handicap the plan, the report points out.

### **Plans Railless Air Service**

SAN FRANCISCO, Oct. 3—Plans for a direct-transcontinental air service between California and the East Coast, independent of rail connections, and the construction of a \$1,000,000 airport and factory at Burbank were announced here by F. B. Rentschler, head of the United Aircraft and Transport Company, and W. E. Boeing, Pacific Coast airplane magnate.

### **Hubbard's Death Will Not Affect Company Policies**

CLEVELAND, Sept. 30—Commenting tonight on the death last Thursday in Montclair, N. J., of Louis V. Hubbard, president and treasurer of the Taft-Peirce Mfg. Co., of Woonsocket, R. I., Frederick S. Blackall, Jr., vice-president and general manager of the company, said: "The death of Mr. Hubbard, who primarily was concerned with the fiscal affairs of the company, will have no effect whatsoever on the plans or policies of the company, which now is operating at the highest peak of activity in its history and is looking forward to excellent business." Mr. Blackall said that no successor to Mr. Hubbard had been chosen and that the office may be left vacant for some time out of respect to Mr. Hubbard.

### **Ford Raises Truck Prices**

DETROIT, Oct. 2—The Ford Motor Co. has announced that the price of the Ford Model AA, 1½-ton truck, has been advanced from \$460 to \$540. Specifications remain the same with the following exceptions: Reduction in high has been changed from 5.11 to 1 to 5.17 to 1; chassis weight has been increased from 2386 lb. to 2485 lb.; 6.00 x 20-in. balloons replace 30 x 5-in. high pressure tires formerly used on front wheels and distance from center cab to rear axle has been increased from 51 to 51½ in.

### **Allis-Chalmers Offers Split**

NEW YORK, Oct. 3—Allis-Chalmers Mfg. Co. has offered stockholders of record October 10 rights to subscribe to additional stock at \$60 a share on a ten-for-one basis. The rights call for the issuance of 114,000 shares of common stock, \$30 to be payable on or before October 31 and the remainder on or before April 30, 1930. It is stated that the outstanding common stock now



## Airplane Units Lead in New Construction

### Garage Buildings Are Among Major Proposals for New Projects

PHILADELPHIA, Oct. 3—Building permits for automotive construction throughout the United States was featured this week by proposed construction of airplane parts and assembly units. Several architects are initiating plans for large repair and service garage buildings and B. F. Goodrich announces plans for another unit of its \$1,000,000 project in Atlanta.

Shampan & Shampan, Brooklyn architects, plan 3-story automobile service repair garage to cost \$350,000 with equipment.

William C. Durant, New York (formerly of Durant Motors, Inc.), to establish plant for manufacture of cotton-picking machine, including parts and assembling departments.

Bakelite Corp., New York, has engaged Francisco & Jacobus to prepare plans for plant at Bound Brook, N. J., to cost \$500,000 with equipment.

W. D. Bigelow, Amherst, Mass., organizing company to manufacture automobile jacks and airplane devices under name of Bigelow-Springfield Engineering & Mfg. Co., at Springfield, Mass.

Firestone Tire & Rubber Co., Akron, plans 3-story factory branch, storage and distributing plant at Pittsburgh, to cost more than \$200,000 with equipment; Lockwood Greene Engineers, Inc., Cleveland, architect.

Timken-Detroit Axle Co., Detroit, plans additions, to cost \$150,000 with equipment.

Monarch Aircraft Co., Rockford, Ill., erecting airplane manufacturing plant, parts and assembling, to cost \$75,000 with equipment.

Inter-State Aviation Corp., Chicago (Godfrey E. Larson, architect), planning new airport on 170-acre tract near Irving Park Boulevard. Two hangars, repair shops, etc., will be built; project will cost about \$200,000 with equipment.

C. H. Will Motors Corp., Indianapolis, (commercial automobiles, parts, etc.), plans addition, to cost \$150,000 with equipment.

Thompson Products, Inc., Cleveland (valves, pistons, brake rod assemblies, etc.), bought property at West St. Catherines, Ont., for Canadian plant, to cost about \$175,000 with equipment.

White Motor Co., Cleveland (motor trucks), awarded general contract to George A. Rutherford Co., for service, repair and sales building, to cost about \$175,000 with equipment.

Wisconsin Axle Co., Oshkosh, Wis., is excavating for addition to machine shop, to cost \$100,000 with equipment.

H. Harvey Warwick, Washington, D. C., architect, has received plans for 3-story automobile service and repair garage to cost \$100,000 with equipment.

B. F. Goodrich, Akron, to ask bids on contract in October for unit of automobile tire and tube mill at Atlanta, Ga., to cost \$250,000 with equipment. Entire plant will cost more than \$1,000,000.

Automotive Electric Co., Evansville (electrical equipment) planning to rebuild part of plant.

Arthur Chevrolet Aviation Motors Corp., Indianapolis, arranging for plant to manufacture an aircraft engine of special design. Initial units will cost \$75,000 with equipment.

## N.A.C.C. Traffic Managers Plan to Develop Pacific Ports Shipments of Unboxed Cars

DETROIT, Oct. 3—Traffic managers of the National Automobile Chamber of Commerce, meeting here last week, discussed the practicability of developing unboxed shipments of automobiles on rail and steamship lines via Pacific ports as it has been developed in the Atlantic trade during the last couple of years.

They also heard reports on the classification rating of a number of automobile parts and the final argument before the Interstate Commerce Commission on Eastern Class rates, and the proposed I.C.C. report on Western Class rates.

Included in the items listed for better rates are mixed carloads of parts, carpets in carloads, iron and steel, of which immense quantities are received by the factories, packing and shipping pads, spring covers, radiator shells, speedometer heads, shafts and connections, and instrument panels.

The Rate Commission reported that further negotiations are to be had with the carriers in October on the rates on heaters, radiators, shock absorbers, body and top parts, plush and velours, bodies and parts for export, autos and chassis, K.D., rough stampings, truck seat cabs, tool kits and the rule governing the minimum carload weight on

freight cars of various lengths on which changes that would widely affect the industry have been proposed by carriers.

Plans were laid for intensive study of rates on all automobile parts, the total freight on which amounts to many millions of dollars annually. A very complete study over a period of a year of this character has just been completed with respect to the rates on finished automobiles.

A questionnaire regarding automobile traffic submitted by the War Department U. S. Engineer's Office was discussed by the meeting, and while sufficient data is not at hand to determine definitely, it was felt that the best possible information should be developed. The survey of the War Department Engineers has to do with the desirability and practicability of enlarging the Erie and Oswego Canals so as to accommodate ships of sea-going capacity.

Factories represented at the meeting included Buick, Cadillac, Chevrolet, Chrysler, Dodge, Durant, Federal, General Motors, Hudson, Hupp, Mack, Lincoln, Marmon, Packard, Pierce-Arrow, Reo, Studebaker, White, K. A. Moore (N.A.C.C.), and J. S. Marvix (N.A.C.C.), chairman of the conference.

Charles R. Weatherhogg, Fort Wayne, architect, plans automobile and service garage to cost \$100,000 with equipment.

Century Aircraft Co., Kansas City, will carry out expansion at airplane manufacturing plant, including installation of additional equipment.

Transcontinental Air Transport, Inc., Syndicate Trust Bldg., St. Louis, affiliated with Curtiss Flying Service, has work under way on air terminal on Highway No. 3, East St. Louis, Ill., to include three hangars, repair shop, oil storage, etc., to cost \$100,000. Kenneth Franzheim, New York, architect; Love Sultan, Inc., St. Louis, consulting engineer.

Northrup Co., Los Angeles (aircraft and parts), awarded contract to Austin Co. of California, Inc., for plant at United Airport, Burbank, to cost \$50,000 with equipment.

Aircraft Industries, Inc., Modesto, Cal. (G. L. Bush, Bush Electric Co., San Francisco), considering plant to cost \$65,000 with equipment.

Kreutzler Aircraft Corp., Los Angeles, to increase capital, for developing additional plant facilities.

## Chance Vought to Build

LONG ISLAND CITY, N. Y., Oct. 2—The Chance Vought Corp., aircraft manufacturer, has bids for plant at East Hartford, Conn., adjoining works under construction for Pratt & Whitney Aircraft Corp., an affiliated organization. It will consist of one-story parts and assembling unit, 241 x 545 ft., with L-extension, 80 x 225 ft., and three-story and basement administration and engineering building, 51 x 185 ft., to cost over \$1,000,000.

## Gardner Investigating Mail Order Sales Plan

ST. LOUIS, Oct. 3—The Gardner Motor Co. is investigating the feasibility of manufacturing an automobile in the low price field to be sold by Sears, Roebuck & Co. Investigation and research work necessary to determine the practicability of such a project has been under way for several months under a contract between the Gardner company and Sears-Roebuck which stipulates that in the event it is decided to produce the new car, manufacturing will be carried on by the Gardner company.

Although no decision has been reached regarding the manufacture of the car or no definite type selected, it is understood that the investigation has narrowed the field of possibilities to such an extent that development work on a specific model may start in the near future.

No matter what car is made for Sears-Roebuck, if it is decided to manufacture any, the Gardner company will continue to produce its straight-eight, Russell E. Gardner, Jr., president of the company, said today.

Announcement has been made also that the company will make a front-wheel-drive car which will be introduced at the automobile show in New York next January. This car will have no connection with the Ruxton front-wheel-drive automobile, which is made by the Gardner company.

## Financial Notes

**H. H. Franklin Mfg. Co.** has declared regular quarterly dividend of 50 cents on common and \$1.75 on preferred both payable Nov. 1 to stockholders of record Oct. 20.

**National Carbon Co.** has declared regular quarterly dividend of \$2 on preferred payable Nov. 1 to stockholders of record Oct. 20.

**Spicer Mfg. Co.** has declared regular quarterly dividend of 75 cents on Class A preferred payable Oct. 15 to stockholders of record Oct. 5.

**Apollo Magneto Corp.,** Kingston, N. Y., has purchased the assets, patents and goodwill of the Automatic Motor Control Corp., manufacturer of automatic motor gages, according to announcement by John K. Lencke, president of Apollo.

**Wright-Tuttle Aircraft Motors Corp.** of Anderson, Ind., American licensee of the Renard Aircraft Motors, is offering a block of 100,000 shares of common stock at a price to be announced later.

**Stearman Aircraft Co.** stockholders have deposited stock in sufficient number to assure the consolidation of that company with the United Aircraft & Transport Co. The final date for deposit is Oct. 1.

**Continental Motors Corp.** has declared regular quarterly dividend of 20 cents, payable Oct. 30 to stockholders of record Oct. 5.

**Hupp Motor Car Corp.** has declared regular quarterly dividend of 50 cents payable Nov. 1 to stockholders of record Oct. 15.

**Aero Supply Mfg. Co., Inc.,** reports sales for July of \$205,053 as compared with 187,382 in June. Sales for the seven months ended July 31 were \$1,329,971 and profits after all charges were \$216,920.

**Nachman-Springfield Corp.,** Chicago, has not considered increasing the present dividend rate of \$3 annually, it was declared today by Louis A. Suekoff, president. Recent strength of the stock on the Chicago Exchange has given rise to rumors that a dividend increase was in prospect.

**Packard Electric Co.** has declared regular quarterly dividend of 65 cents payable Oct. 15 to stockholders of record Sept. 30.

**Fokker Aircraft Corp.** has declared regular quarterly dividend of 43½ cents on first preferred stock, payable Oct. 15 to stockholders of record Oct. 7.

**Continental Motors Corp.** has declared regular quarterly dividend of 20 cents on common, payable Oct. 30 to stockholders of record Oct. 15. With this dividend the company will have paid to stockholders in 1929 the sum of \$1,750,400.

**Detroit Motor Bus Co.** has declared a dividend of 20 cents, payable Oct. 15 to stockholders of record Sept. 30.

**Eaton Axle & Spring Co.** has declared regular quarterly dividend of 75 cents, payable Nov. 1 to stockholders of record Oct. 15.

**Manning, Maxwell & Moore, Inc.,** has declared regular quarterly dividend of \$1, payable Oct. 2 to stockholders of record Sept. 30.

## Fisk to Manufacture Puncture-Sealing Tube

**CHICOPEE FALLS, MASS., Oct. 2**—The manufacture of a new puncture-sealing tube, production of which will start early this month, was announced by the Fisk Rubber Co. The feature of the new tube will be a heavy compressed strip made of specially prepared rubber which will be firmly united with the body of the tube under its dome.

The strip will be united with the tube when placed on a mandrel, inside out. As the tube is removed from the mandrel, the strip will be on the inside. When the tube in service is pierced, the perforation will immediately seal up after withdrawal of the cause of the puncture, it is said.

The officials state the manufacture of the new puncture-sealing tube is in line with the company's policy of constant research and improvement in connection with its products. They anticipate a hearty reception of the new product by the public, as it will contribute to longer tire life; maintain air pressure and eliminate changing of tires due to flats.

### Autocar to Split 3 to 1

**PHILADELPHIA, Oct. 2**—A special meeting of stockholders of Autocar Co. has been called for Oct. 30 to vote on proposal to change stock to no par value from \$100 par. Following a re-

duction in the par value, directors propose to issue three no par shares in exchange for each \$100 par share held.

Stockholders of record October 30, have been offered rights to subscribe to additional 50,000 no par shares, at \$30 a share, on the basis of one new no-par share for each three no par shares held.

### Paul R. Gray

**DETROIT, Oct. 2**—Paul R. Gray, Detroit capitalist, whose father was the first president and one of the original stockholders in the Ford Motor Co., died Sept. 27 at his summer home in Harwichport, Mass.

Mr. Gray was born in Detroit on July 24, 1867, and was graduated from Detroit High School and the University of Michigan. He once was vice-president of the Gray Motor Co. He became vice-president of the first State Bank and the John R. Gray Estate. He was a member of the Detroit Athletic, Detroit Country and Detroit Boat Clubs and of the Detroit Board of Commerce.

When the Fords purchased the outstanding stock of the Ford Motor Co. in 1919 the Gray family received approximately \$25,000,000 for their share. It was estimated they had also received approximately \$25,000,000 in dividends.

### Dividends Total \$1,750,400

**DETROIT, Oct. 3**—The Continental Motors Corp. declared its regular quarterly dividend of twenty cents per

## Thompson Acquires French Valve Firm

### Foreign Position Strengthened by Purchase of Monopole, Says President

**CLEVELAND, Oct. 2**—Thompson Products, Inc., of Cleveland and Detroit, manufacturer of valves, pistons, pins, bushings and automotive steering apparatus, has purchased a controlling interest in the S. A. des Etablissements Mecaniques Monopole of France, it was announced yesterday by Charles E. Thompson, president of the American concern.

The Monopole company is located at Poissy, a suburb of Paris, and is the largest maker of high grade engine valves, pistons and piston rings in France. By special agreement the company has been manufacturing valves from Thompson silcrome analysis steel. C. E. Thompson, a director of the French concern, headed the financial syndicate which handled the transaction. The negotiation was for cash.

This is the second expansion announced in the last few weeks by Thompson Products, Inc., to strengthen its position in the foreign field. Recently ground was purchased at St. Catharines, Ont., for the erection of a large plant to accommodate Canadian and British interests. Earlier in the year the Cleveland Piston & Cox Tool Companies were acquired.

In addition to supplying original equipment parts for French automobiles, the Monopole company specializes in replacement parts for cars outside of France. It has considerable business in the Balkan States, Egypt, northern Africa, Spain, Italy and Tricolor colonies.

The Monopole company has a plant containing 100,000 sq. ft. of floor space and owns its foundry. Methods employed are modern, and the plant is equipped with much low cost producing American machinery. Valves, tie rods, drag links, and other steering gear apparatus will now be made at the French plant under Thompson specifications, thus saving a large sum in taxes.

share, payable Oct. 30 to stock of record Oct. 15, at the regular meeting of its Board of Directors today. With this dividend the company will have paid \$1,750,400 in dividends since the first of the year.

### Reports Elimination of Clutch

**WASHINGTON, Oct. 3**—A. M. Kamper of Leongatha, Victoria, Australia, has patented an invention which he claims will eliminate the use of the ordinary clutch in automobiles and which enables a change of speed to be effected by the simple movement of a lever, a Department of Commerce report says. No particulars are yet available, the report states, although it is said a company is being formed to market the invention.



## Demand Assures Packard Full Capacity Schedule

DETROIT, Oct. 2—Current demand for the Packard models introduced early September practically assures capacity operating schedules up through October, according to Alvan Macauley, president, Packard Motor Car Co.

"In the first twenty days of September, deliveries to customers were 16.3 per cent ahead of deliveries in the same period of September last year and our retail sales were 9.4 per cent greater," he said. During this period distributors have not had all types of cars, and we have had to rely upon practically one type, the standard sedan. It will be late in October before distributors can be supplied with normal stock of cars."

## Form Lacquer Group

NEW YORK, Oct. 2—Manufacturers of about 75 per cent of the lacquer sold have formed a trade group for joint study of economics, manufacture and merchandising of lacquer products. The officers of the institute are Charles H. Reed, Forbes Varnish Co., chairman; A. W. Steudel, Sherwin-Williams Co., vice-chairman; W. C. Dabney, Jones-Dabney Co., and P. E. Kennedy, Murphy Varnish Co., members of the executive committee. H. B. Sweatt, 55 W. Forty-second St., New York, is secretary and treasurer.

## Acetylene Session for Chicago

NEW YORK, Sept. 26—The International Acetylene Association will hold its annual convention at the Congress Hotel, Chicago, Nov. 13 to 15.

## Studebaker Adds Broughams

CHICAGO, Oct. 2—Studebaker is rounding out its line of broughams by the introduction of two new five-passenger models, the Dictator eight brougham at \$1,365 and the Dictator six brougham at \$1,225.

## Million is Needed to Guard Air Lines

LOS ANGELES, Sept. 29—To assure adequate protection of transcontinental air lines, the United States Weather Bureau will require an appropriation of more than a million dollars, perhaps two million, next year.

The prediction was made here by Prof. Charles F. Marvin, chief of the United States Weather Bureau and a member of the National Committee for Aeronautics. He explained that the purpose of his visit to the West Coast was to inspect extensions made for the protection of airways and see what improvements could be made.

## Hudson Will Show Wide Range of Body Styles

DETROIT, Oct. 3—The Hudson Motor Car Co. has announced that it will exhibit 26 regular body styles at the Paris Salon and the London Olympia Show next month. Because of its variety of the 90 optional color schemes available at the standard price of the car, the company plans to exhibit its standard models rather than to prepare special de luxe show bodies, it was explained. S. G. Baits, chief engineer, and J. S. Draper, general export manager, will attend both shows. They will be joined in Paris by O. H. Williams, European director of Hudson-Essex activities. At Paris a meeting of all Continental Hudson-Essex distributors has been arranged, while at London a similar meeting will be held of distributors and dealers in the British Isles. The Hudson-Essex chiefs will inspect the new plant in Brussels, Belgium, which is expected to be in operation by the first of the year.

## Lakey Foundry Declares Cash and Stock Dividend

DETROIT, Oct. 2—At the regular meeting of the board of directors of the Lakey Foundry Machine Co., Inc., held last week, a quarterly dividend of 50 per cent per share and an extra 2½ per cent stock dividend was declared, payable Oct. 30 to stockholders of record Oct. 15.

"The changes introduced into the foundry earlier in the year are now producing results though greater production efficiency which continues to show increased returns," declared Herman A. Becker, president of the company. "This is witnessed by the fact that cylinder production was increased 33 1/3 per cent during July and August as against the same period a year ago, without additional expenditures for buildings or increased floor space."

## Oil Merger is Expected

NEW YORK, Oct. 2—Plans for the consolidation of the Standard Oil Co. of New York and the Vacuum Oil Co., which have been rumored for several months, are now understood in financial circles to have reached the point where the merger seems definitely assured. Officials of the two companies continue to maintain silence as to the plans but financial circles feel that some definite announcement will be forthcoming before long.

## Automotive Fan is Expanding

DETROIT, Oct. 3—According to Charles Hollerith, general manager of the Automotive Fan & Bearing Co., Jackson, Mich., the company is building a new plant, 45,000 sq. ft. in floor area, to be ready for occupancy about Nov. 1. The Johnson Walters Mfg. Co., which is the Detroit branch of the Jackson firm, will be moved into the new plant at Jackson and it is understood that several new automotive products will be announced in November.

# Calendar of Coming Events

## SHOWS

Dallas, Automobile ..... Oct. 12-27  
Atlantic City, Automobile ..... Oct. 21-22  
Philadelphia, Automobile ..... Jan. 11-18  
Cincinnati, Automobile ..... Jan. 12-18  
Detroit, Automobile ..... Jan. 18-25  
Louisville, Automobile ..... Jan. 18-25  
Hartford, Automobile ..... Jan. 18-25  
Rochester, Automobile ..... Jan. 20-25  
Wichita, Automobile ..... Feb. 3-8  
Cumberland, Automobile ..... Feb. 3-8  
Syracuse, Automobile ..... Feb. 3-8  
Peoria, Automobile ..... Feb. 4-8  
St. Louis, Automobile ..... Feb. 4-9  
Providence, Automobile ..... Feb. 14-22  
Des Moines, Automobile ..... Feb. 24-Mar. 1  
Detroit (All-American Aircraft) ..... April 5-13  
Paris, Automobiles ..... Oct. 3-13  
London, Automobiles ..... Oct. 17-26  
Prague, Automobiles ..... Oct. 23-30  
Paris, Motorcycles ..... Oct. 23-Nov. 3  
M.&E.A. Show and Convention, Chicago ..... Nov. 4-9  
N.S.P.A. Show and Convention, Detroit ..... Nov. 11-16  
London, Trucks ..... Nov. 7-16  
Paris, Trucks ..... Nov. 14-24  
London, Motorcycles ..... Nov. 30-Dec. 7  
Brussels Auto Salon ..... Dec. 7  
New York National ..... Jan. 4-11  
Newark (N. J.) Automobile Show ..... Jan. 11-18

Boston Automobile Show ..... Jan. 13-25  
Chicago National, Coliseum ..... Jan. 25-Feb. 1  
Cleveland Automobile Show ..... Jan. 25-Feb. 1

## CONVENTIONS

Asbestos Brake Lining Assn., New York ..... Dec. 11  
National Industrial Advertisers Assn., Cincinnati ..... Sept. 30-Oct. 2  
National Safety Congress, Annual, Chicago ..... Sept. 30-Oct. 4  
Ohio Assn. of Commercial Haulers, Cleveland ..... Jan. 30-31  
Penna. Automotive Association, Erie, Pa. ..... Oct. 7-8  
Permanent International Association of Road Congresses, Sixth Session, Washington, D. C. ..... Oct. 7-11  
Associated Business Papers, Chicago, Oct. 21-22  
Society of Industrial Engineers, Detroit ..... Oct. 16-18  
National Hardware Association, Atlantic City ..... Oct. 21-24  
Society of Industrial Engineers, Sixteenth Annual Meeting, Hotel Statler, Cleveland ..... Oct. 23-25  
National Battery Mfrs. Assn., Hollenden Hotel, Cleveland ..... Oct. 24-25  
Amer. Gear Mfrs. Assn., Phila. ..... Oct. 24-26  
World Engineering Congress, Tokio, Japan ..... Oct. 29-Nov. 22

National Automotive Parts Association, Detroit ..... Nov. 6-8  
National Tire Dealers Assn., Chicago, Nov. 11-14  
International Acetylene Assn., Chicago, Nov. 13-15  
Highway Research Board, Ninth Annual Meeting, Washington, D. C., Dec. 12-13  
National Automobile Dealers Association, New York City ..... Jan. 6  
American Roadbuilders Association, Atlantic City ..... Jan. 11-18  
National Automotive Dealers Association, Chicago ..... Jan. 27-28  
Southwest Road Show and School, Wichita ..... Feb. 25-28

## RACES

Edsel B. Ford Air Tour, Dearborn, Mich. .... Oct. 5-21  
Los Angeles ..... Nov. 17

## S. A. E.

Production Meeting, Cleveland ..... Oct. 2-4  
Transportation Meeting, Toronto ..... Nov. 12-15  
Annual Meeting, Detroit ..... Jan. 21-24

## SALONS

Hotel Drake, Chicago ..... Nov. 9-16  
Hotel Commodore, New York City ..... Dec. 1-7  
Hotel Biltmore, Los Angeles ..... Feb. 8-15  
Palace Hotel, San Francisco, Feb. 23-Mar. 1